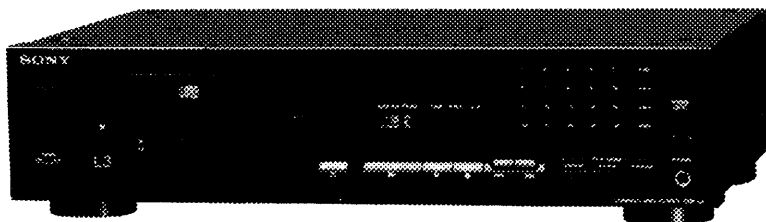


CDP-L3

SERVICE MANUAL

*US Model
Canadian Model
AEP Model
UK Model*



Model Name Using Similar Mechanism	NEW
CD Mechanism Type	CDM25C-5BD20
Optical Pick-up Type	BU-5BD20

SPECIFICATIONS

Compact disc player

Laser	Semiconductor laser ($\lambda = 780 \text{ nm}$) Emission duration: continuous
Laser output	Max 44.6 μW^* * This output is the value measured at a distance of 200 mm from the objective lens surface on the Optical Pick-up block with 7 mm aperture.
Frequency response	2 Hz to 20 kHz $\pm 0.5 \text{ dB}$
Signal-to-noise ratio	More than 110 dB
Crosstalk	More than 100 dB
Harmonic distortion	Less than 0.003%
Channel separation	More than 105 dB
Outputs	
ANALOG LINE OUT (Balanced output)	XLR $\times 2$ (balanced) Load impedance: Over 10 kilohms Maximum output level: +24 dB* - +6 dB* (at 50 kilohms, variable)
ANALOG LINE OUT	Phono jacks $\times 2$ (unbalanced) Load impedance: Over 10 kilohms Maximum output level: +8 dB* (at 10 kilohms)
PHONES	Stereo phone jack Maximum output level: 28 mW (at 32 ohms, variable)

* 0 dB = 0.775 V

General

Power requirements

Where purchased	Power requirements
U.S.A., Canada	120 V AC, 60 Hz
Europe	230 V AC, 50/60 Hz

Power consumption	14 W
Dimensions (approx.) (w/h/d)	430 $\times$ 110 $\times$ 295 mm (17 $\times$ 4 3/8 $\times$ 11 5/8 in.) incl. projecting parts
Mass (approx.)	4.1 kg (9 lbs 1 oz)

Supplied accessories

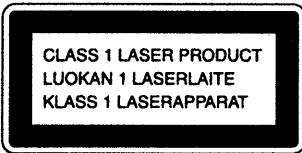
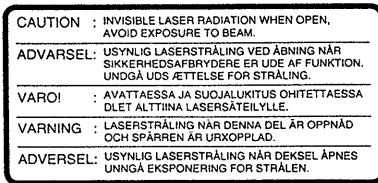
- AC power cord (1)
- Audio connecting cord (1)
- Remote commander (remote) RM-DL3 (1)
- Sony SUM-3 (NS) batteries (2)
- Rack mount adaptors (2)
- Screws (M5 $\times$ 12) (2)
- Decorative washers (4)
- Decorative panel (1)
- Tapping screw (3 $\times$ 8) (4)
- Operating instructions (1)
- Warranty card
(U.S.A. and Canadian models only) (1)

Design and specifications are subject to change without notice.

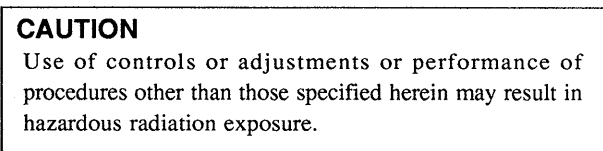


COMPACT DISC PLAYER
SONY®

The following caution label is located inside of the unit.



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



Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

Flexible Circuit Board Repairing

- Keep the temperature of the soldering iron around 270 °C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

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MODEL IDENTIFICATION — BACK PANEL —



US, Canadian model : 4-980-078-1□

AEP, UK model : 4-980-078-2□

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.

SECTION 1

SERVICING NOTE

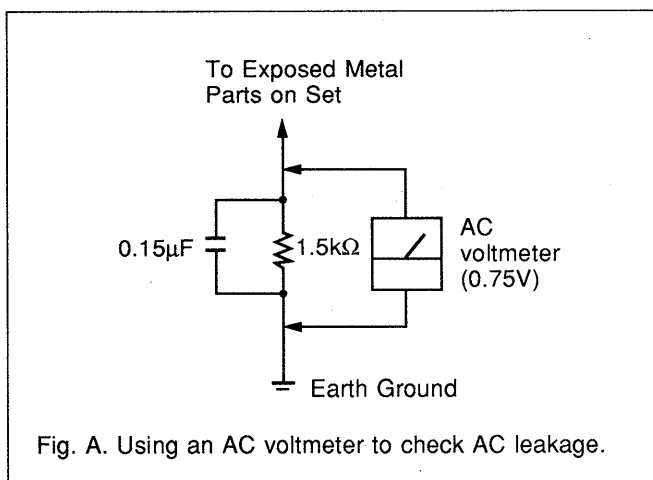
SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks 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

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 2V 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 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 include in the repair parts.

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

NOTES ON LASER DIODE EMISSION CHECK

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

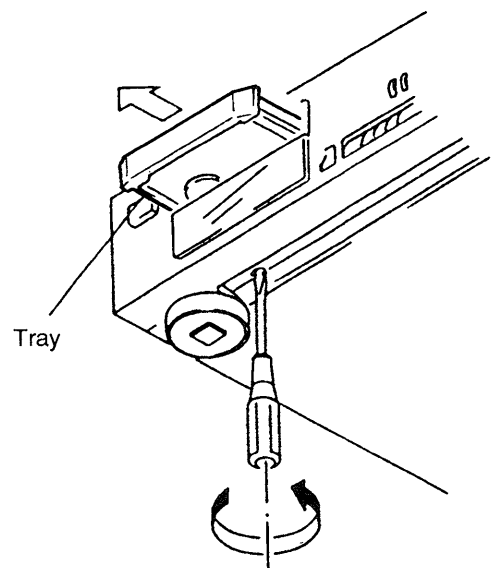
LASER DIODE AND FOCUS SEARCH OPERATION CHECK

Carry out the "S curve check" in "CD section adjustment" and check that the S curve waveform is output three times.

HOW TO OPEN THE DISC TRAY WHEN POWER SWITCH TURNS OFF

Insert a tapering driver into the aperture of the unit bottom, and turn in the direction of arrow.

* To close the disc tray, turn the driver in the reverse direction.

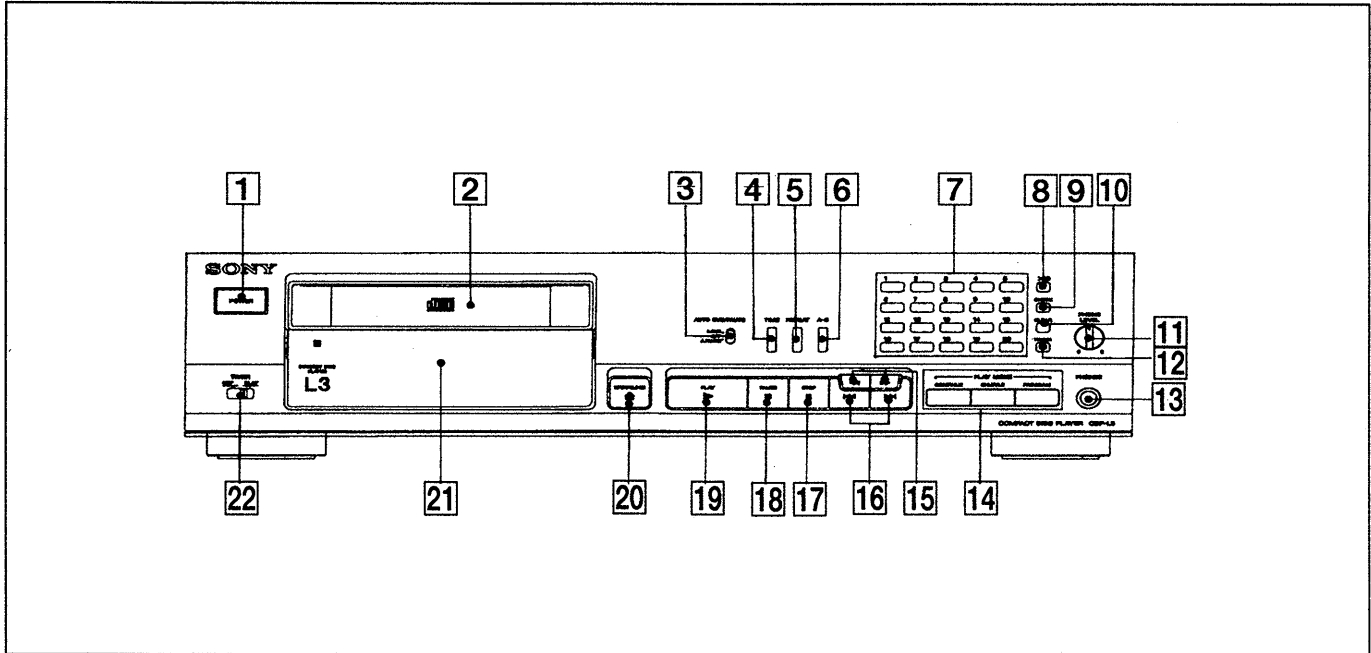


SECTION 2

GENERAL

Identifying the Parts

Front Panel



- 1** POWER switch
- 2** Disc tray
- 3** AUTO CUE/PAUSE switch
- 4** TIME button
- 5** REPERT button
- 6** A-B button
- 7** Numeric buttons
- 8** >20 (over 21) button
(>10 (over 10) button on the remote commander)
- 9** CHECK button
- 10** CLEAR button
- 11** PHONE LEVEL control
- 12** FADER button
- 13** PHONES jack

- 14** PLAY MODE buttons
- CONTROL** button
- SHUFFLE** button
- PROGRAM** button
- 15** ◀◀/▶▶ (manual search) buttons
- 16** ◀◀/▶▶ (AMS*) buttons
- 17** STOP ■ button
- 18** PAUSE || button
- 19** PLAY ▶ button
- 20** OPEN/CLOSE ▲ button
- 21** Display window
- 22** TIMER switch

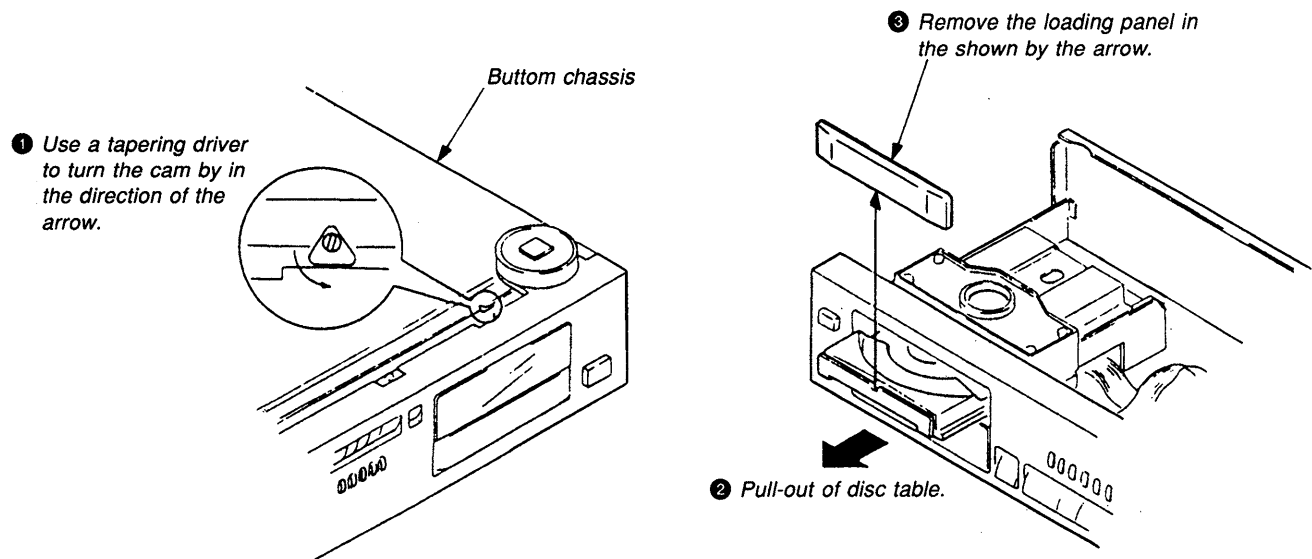
* AMS is the abbreviation for Automatic Music Sensor.

SECTION 3

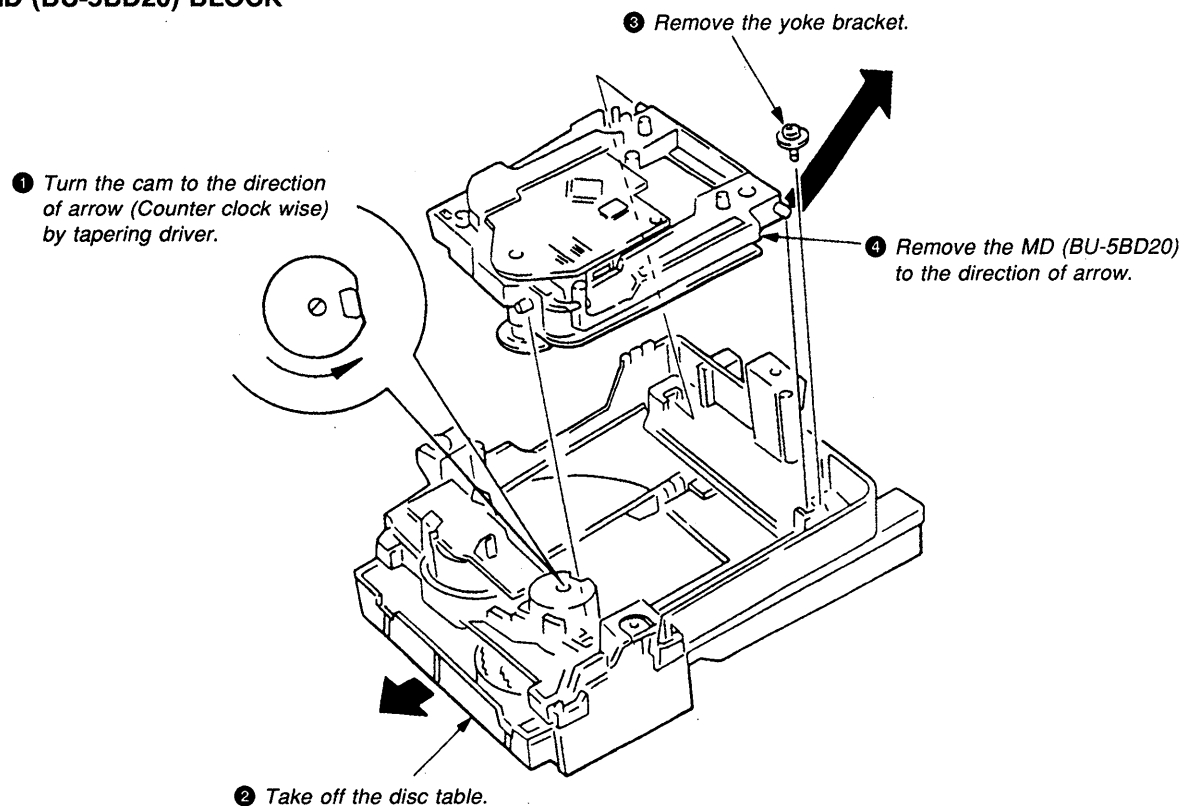
DISASSEMBLY

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

3-1. LOADING PANEL



3-2. MD (BU-5BD20) BLOCK



SECTION 4

TEST MODE

4-1. AF MODE

The following checks can be performed in the AF mode, which is set by connecting the TP2 (AFADJ) terminal to the GND and turning on the power.

• FL tube check

After all segments light up, when the ► button is pressed, the following will be displayed. (Partial lighting 1)



When the ■ button is pressed, the following will be displayed. (Partial lighting 2)

	2		4	
6		8		10
	12		14	
16		18		20

(Partial lighting 2)

When the OPEN/CLOSE▲ button is pressed, all will light up again.

• Key check

All buttons have corresponding button numbers. When a button is pressed, the counter will count up and display the button's number. However, the counter will only count to "38". It will not count for buttons already pressed once, but will display the button's number.



Display of counting

Display of button number

Button	Button No. Displayed	Button	Button No. Displayed
1	28	>20	03
2	31	CHECK	02
3	12	CLEAR	01
4	11	FADER	00
5	04	PAUSE■	32
6	30	◀◀	43
7	39	▶▶	44
8	13	◀◀	46
9	10	▶▶	45
10	05	CONTINUE	16
11	35	SHUFFLE	17
12	38	PROGRAM	18
13	14	TIME	26
14	09	REPEAT	25
15	06	A-B	24
16	36	PLAY►	Partial lighting 1
17	37	STOP■	Partial lighting 2
18	15	OPEN/CLOSE▲	All lit
19	08		
20	07		

• Remote commander check

When the ► button of the remote commander is pressed, the "►" lights up. All go off when the other buttons are pressed.

• Switch check

The following are displayed according to the position of the TIMER switch and AUTO CUE/PAUSE switch.

Switch	Switch Position	FL Tube Display
TIMER	OFF	No display
	PLAY	REPEAT
AUTO CUE/PAUSE	OFF	No display
	A. PAUSE	MIN
	A. CUE	SEC

• Audio check

- Initial setting of digital filter and release of mute
- When the TP2 (AFADJ) terminal is set to HIGH (VDD), emphasis turns on. When set to LOW (GND), it turns off.

4-2. ADJ MODE

The following operations are performed in the ADJ mode, which is set by connecting the TP1 (ADJ) terminal to the GND and turning on the power.

- During playback, there is no problem even if the GFS is continuously LOW.
- High speed search is prohibited during access.
- During playback, the gain of focus servo and spindle servo does not decrease.
- Servo related manual operations and measurement can be performed.
(For details of operations, refer to Table of Key Operations in ADJ Mode.)

4-3. CLV-S MODE

The spindle servo for playback sets into the CLV-S mode when the TP2 (AFADJ) terminal is connected to GND after turning on the power.

TABLE OF BUTTON OPERATIONS IN ADJ MODE

The jitter value display mode can be set after the all-music remaining number mode using the TIME button.

The functions of the number buttons are shown in the following table.

FUNCTIONS OF NUMBER BUTTONS

Button	Function
1	Focus bias 8-step up
2	Middle of focus bias up/down turning point
3	Tracking servo, sled servo off
4	Auto gain initialization
5	Focus servo off
6	Focus bias 8-step down
7	Immediate readjustment of focus bias
8	Tracking servo, sled servo on
9	
10	Auto focus bias start point
11	S-letter mode (S-letter curve can be seen when FE is measured)
12	Simple eccentricity measurement
13	Auto focus bias upper side turning point display
14	Auto focus bias lower side turning point display
15	Auto focus bias center display
16	Auto focus bias optimum focus bias display
17	Auto focus bias minimum jitter value display
18	TE, traverse average display
19	VC, FE, RF average display
20	Focus, tracking, sled auto gain display

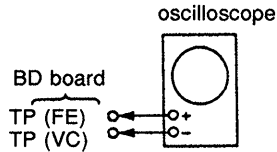
SECTION 5

ELECTRICAL BLOCK CHECKING

Note :

1. CD Block is basically designed 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 an oscilloscope with more than 10MΩ impedance.
4. Clean the object lens using an applicator with neutral detergent when the signal level is low than specified value with the following checks.

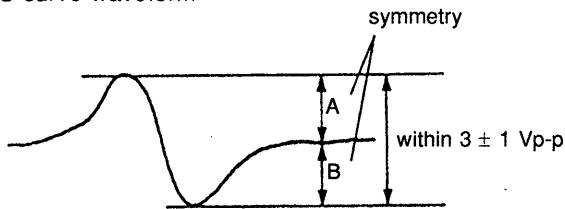
S Curve Check



Procedure :

1. Connect oscilloscope to test point TP (EE) on BD board.
2. Connect the test point TP1 (ADJ) to the ground with a lead wire on main board.
3. Turn the Power switch on to set the ADJ mode.
4. Load the disc (YEDS-18)
5. The S curve can be measured by pressing the number button "11".
6. Check if the oscilloscope wavefome (S-curve) is symmetrical between A and B. And confiem peak to peak level within 3 ± 1 Vp-p.

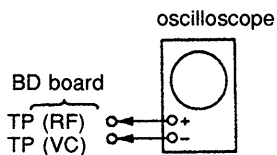
S-curve waveform



7. Disconnect the lead wire of TP (ADJ) connected in step 2

Note : • Try to measure several times to make sure than 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



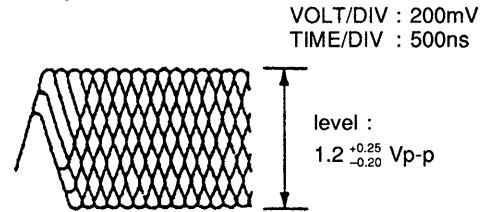
Procedure :

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

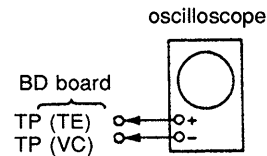
Note :

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

RF signal waveform

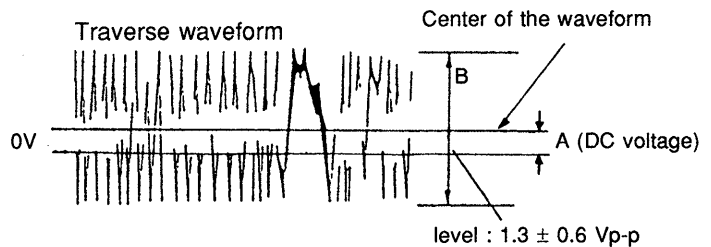


E-F Balance Check

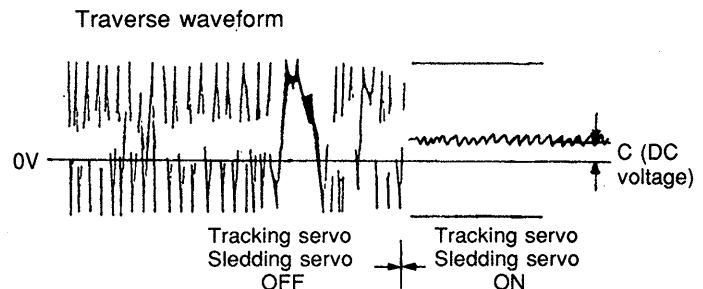


Procedure :

1. Connect the test point TP1 (ADJ) to the ground with a lead wire on main board.
2. Connect oscilloscope to test point TP (TE) on BD board.
3. Turn the Power switch on to set the ADJ mode.
4. Put disc (YEDS-18) in to play the number five track.
5. Press the "3" button. (The tracking servo and the sledding servo are turned OFF.)
6. Check the level B of the oscillscope's waveform and the A (DC voltage) of the center of the Traverse waveform. Confirm the following :
 $A/B \times 100 = \text{less than } \pm 22\%$



7. Press the "8" button. (The tracking servo and sledding servo are turned ON.) Confirm the C (DC voltage) is almost equal to the A (DC voltage) is step 6.

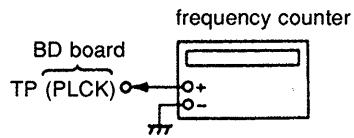


8. Disconnect the lead wire of TP (ADJ) connected in step 1.

RF PLL Free-run Frequency Check

Procedure :

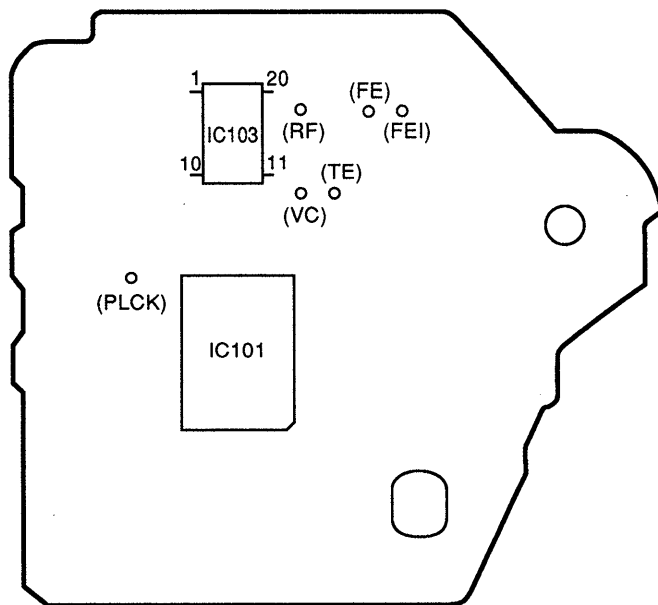
1. Connect frequency counter to test point (PLCK) with lead wire.



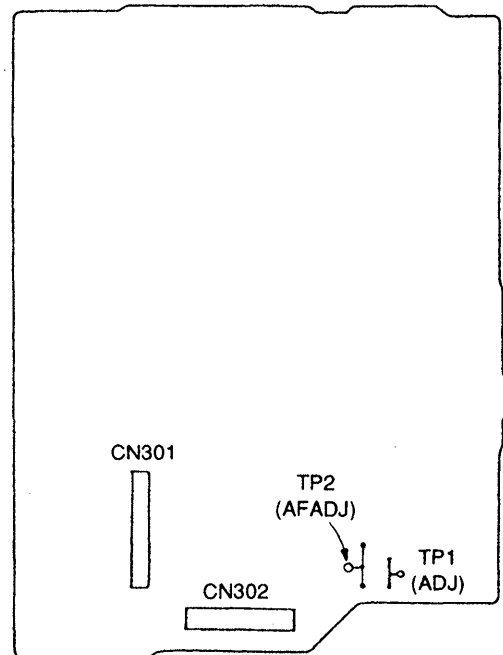
2. Turned Power switch on.
3. Put the disc (YEDS-18) in to play the number five track.
Confirm that reading on frequency counter is 4.3218MHz.

Adjustment Location :

[BD BOARD] — Conductor Side —



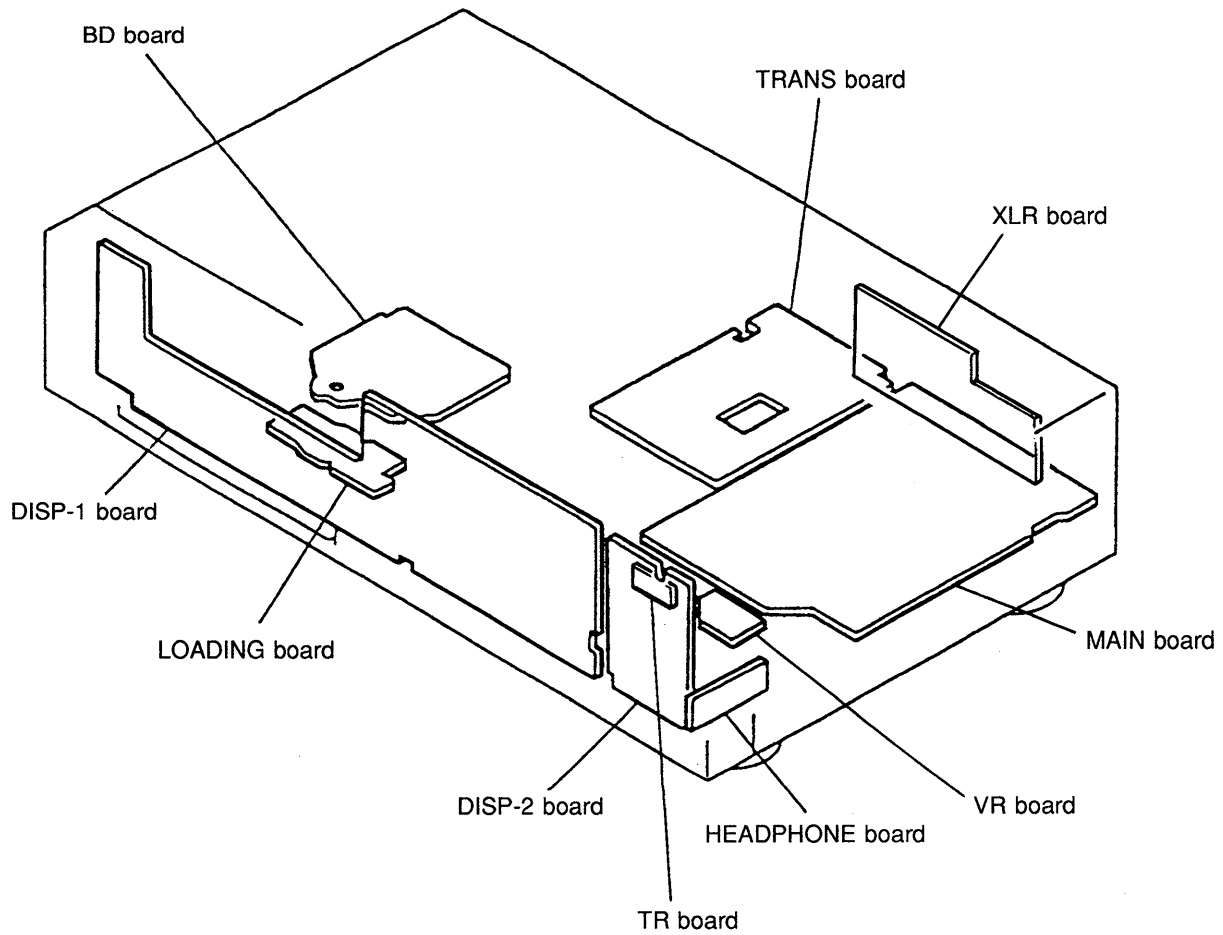
[MAIN BOARD] — Conductor Side —



SECTION 6

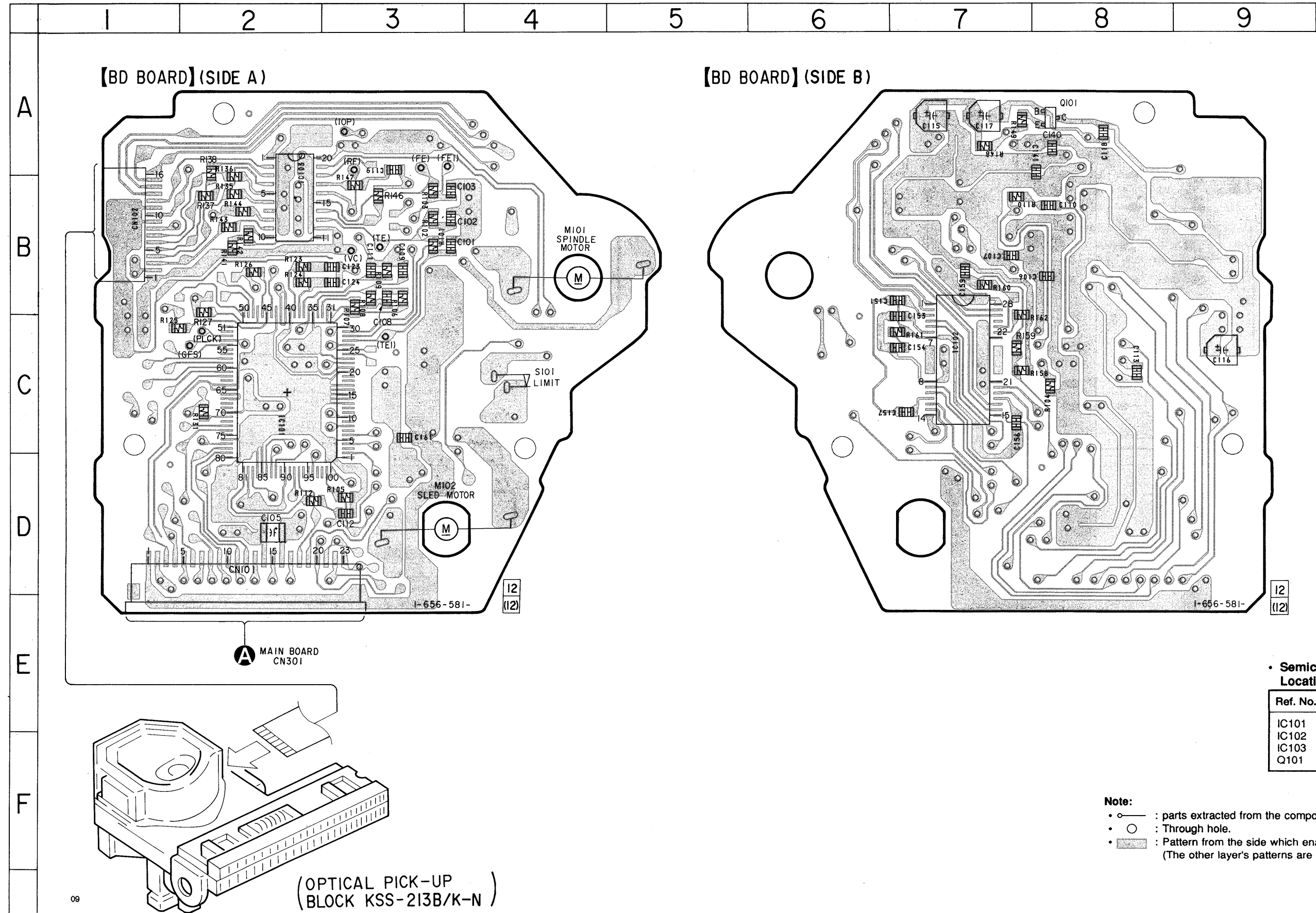
DIAGRAMS

6-1. CIRCUIT BOARDS LOCATION



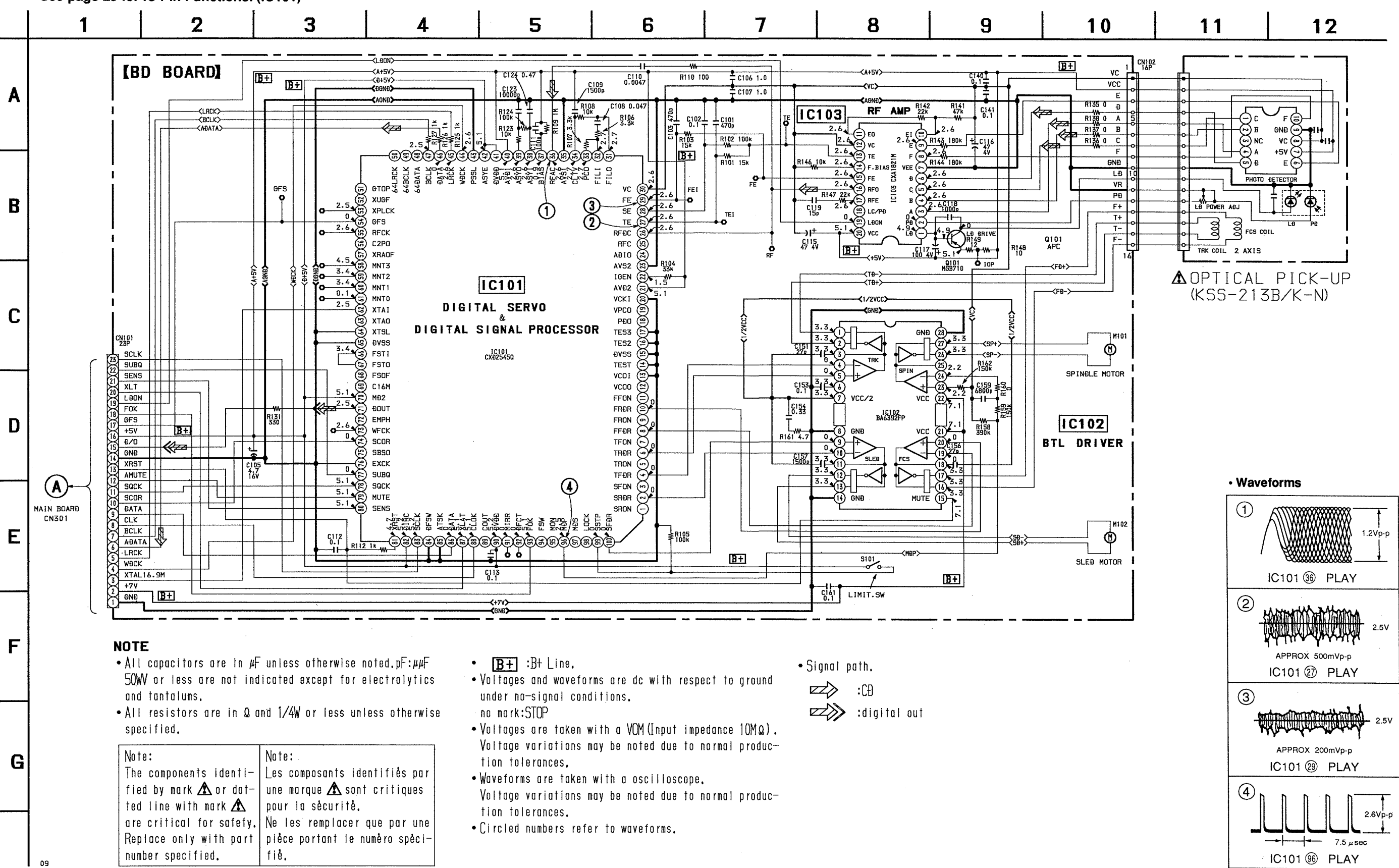
6-2. PRINTED WIRING BOARD — BD SECTION —

• See page 10 for Circuit Boards Location



6-3. SCHEMATIC DIAGRAM —BD SECTION —

• See page 23 for IC Block Diagrams
• See page 25 for IC Pin Functions. (IC101)

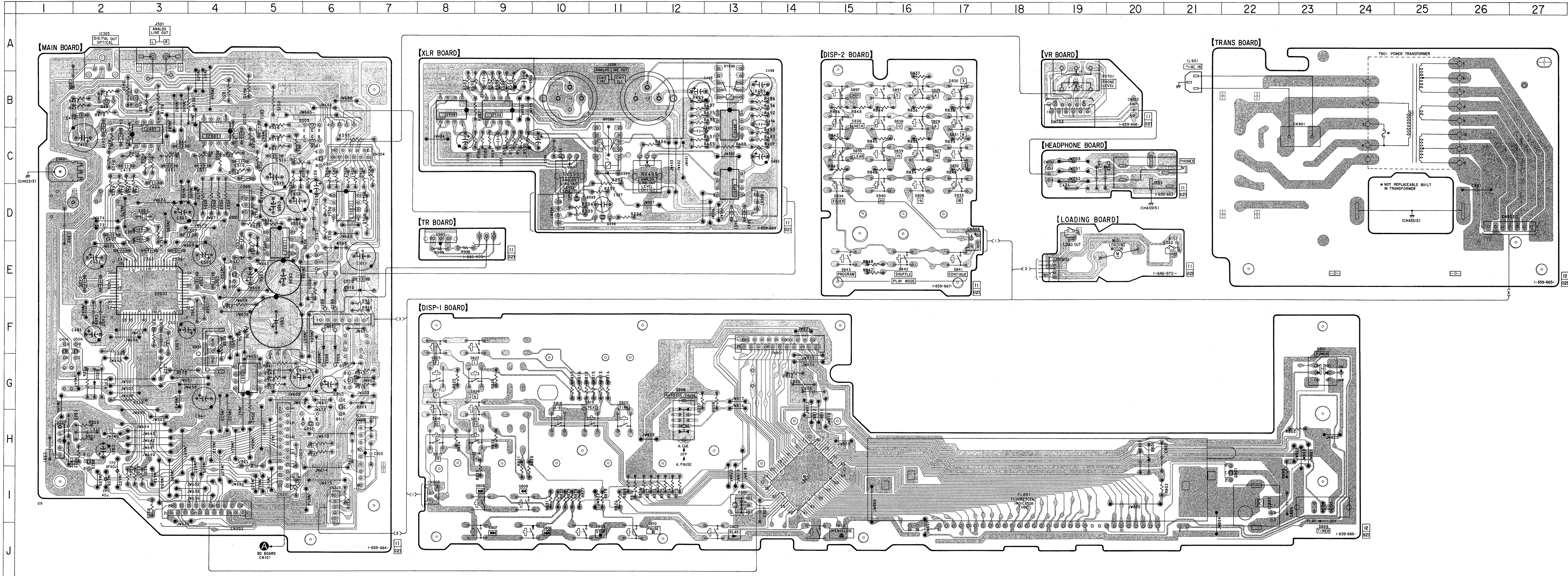


6-4. PRINTED WIRING BOARD — MAIN SECTION —
• See page 10 for Circuit Boards Location

• Semiconductor Location

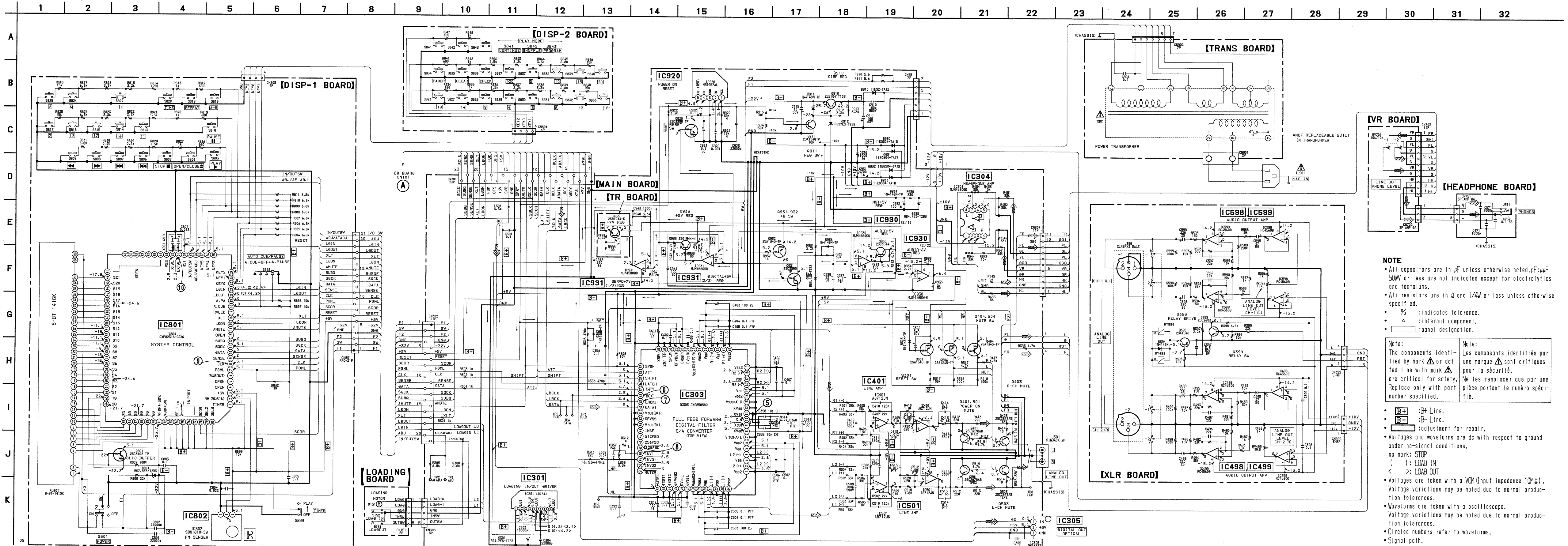
Ref. No.	Location
D301	H-7
D302	G-2
D303	E-6
D394	C-11
D801	H-20
D910	E-6
D911	G-7
D912	G-6
D930	F-6
D931	F-6
D932	G-6
D933	G-6
D934	D-5
D935	C-6
D936	E-5
D937	E-4
IC301	H-7
IC303	E-3
IC304	D-6
IC305	A-2
IC401	C-3
IC498	D-13
IC499	C-13
IC501	C-4
IC598	B-8
IC599	B-9
IC801	I-14
IC802	I-22
IC920	H-1
IC930	E-5
IC931	G-4
Q301	C-6
Q398	D-11
Q399	D-10
Q401	B-2
Q403	B-3
Q404	F-1
Q501	C-6
Q503	C-6
Q504	F-2
Q801	I-22
Q910	G-6
Q911	H-6
Q920	H-2
Q930	D-4
Q931	E-4
Q932	H-6
Q933	F-4
Q999	E-9

Note:
• : parts extracted from the component side.
• : Pattern from the side which enable seeing.
(The other layer's patterns are not indicated.)

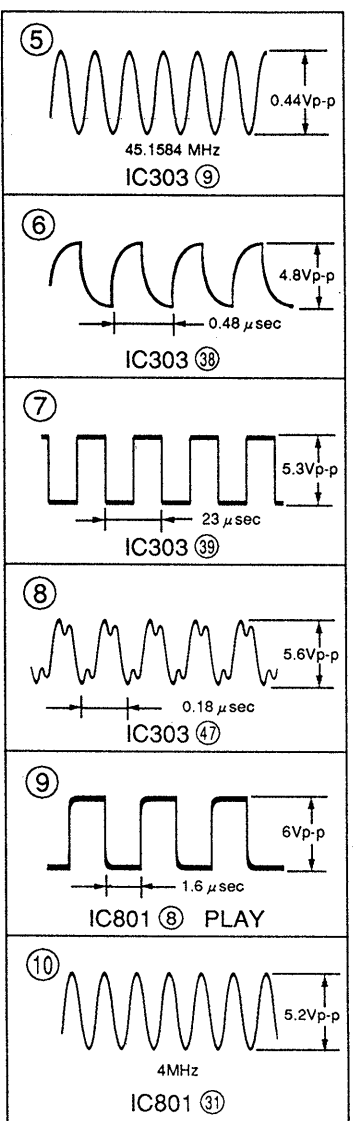


6-5. SCHEMATIC DIAGRAM — MAIN SECTION —

- See page 24 for IC Block Diagrams
- See page 28 for IC Pin Functions (IC801)



• Waveforms



NOTE

- All capacitors are in μF unless otherwise noted. $\text{pF} = 10^{-12}$ 50W or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and $1/4\text{W}$ or less unless otherwise specified.
- % : indicates tolerance.
- Δ : internal component.
- $\square$: panel designation.

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.

- B+ : B+ Line.
- B- : B- Line.
- $\square$: adjustment for repair.
- Voltages and waveforms are dc with respect to ground under no-signal conditions.
- no mark: STOP
- $<$: LOAD IN
- $>$: LOAD OUT
- Voltages are taken with a VOM (input impedance $10\text{M}\Omega$). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
- $\Rightarrow$: CD
- $\Rightarrow$: digital out

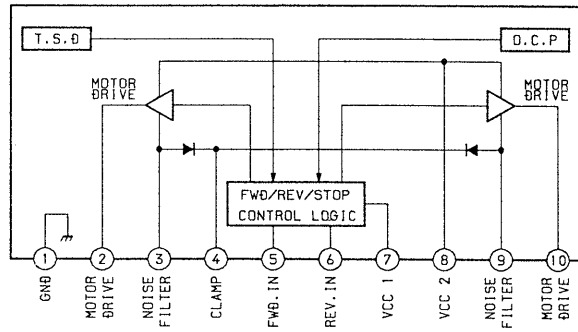
— BD SECTION —

The schematic diagram illustrates the internal circuitry of the Philips 7460 VCR IC, organized into several functional blocks and their associated pin connections:

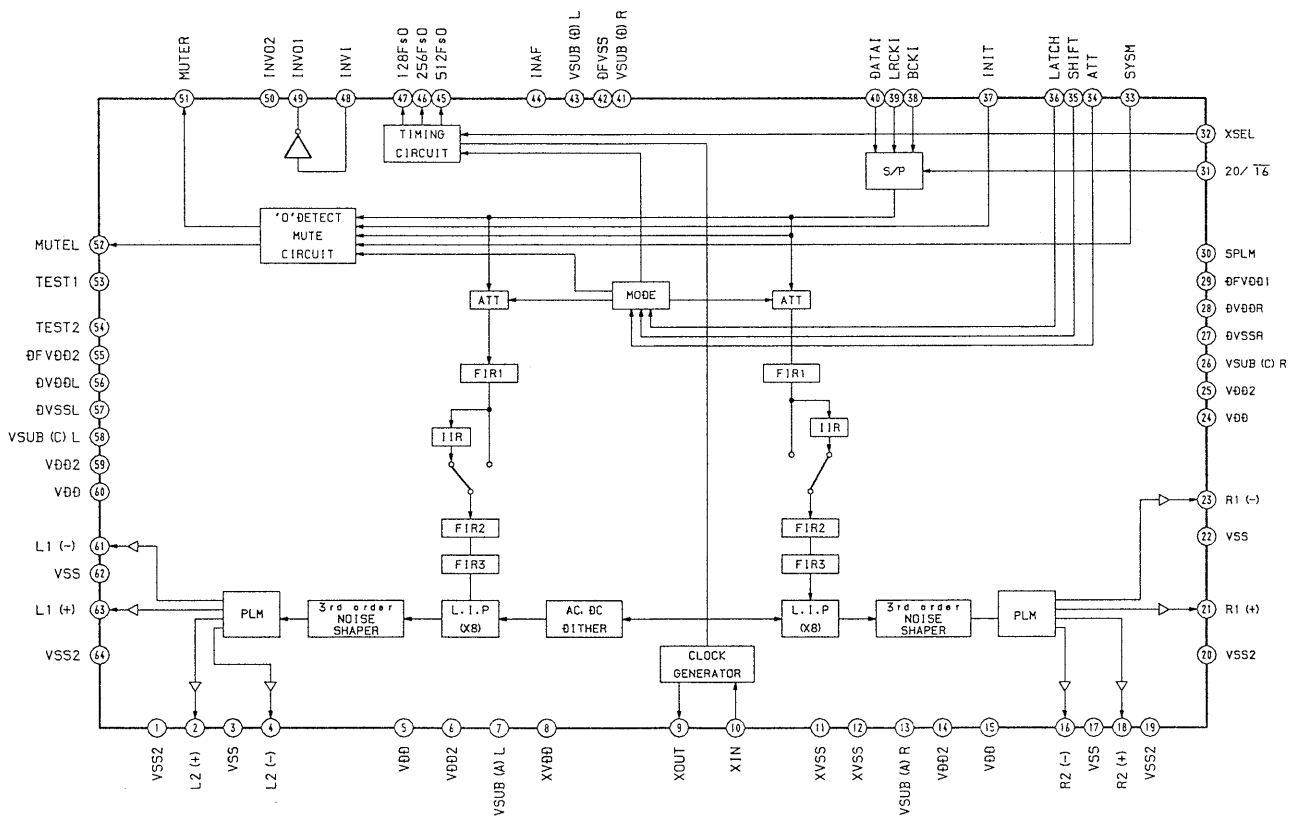
- Input/Output Pins (Left):** LB (1), PB (2), A (3), B (4), C (5), D (6), VEE (7), F (8), E (9), EI (10).
- Input/Output Pins (Right):** VCC (20), LB ON (19), LC/PB (18), RFE (17), RFO (16), FE (15), FE BIAS (14), TE (13), VC (12), EO (11).
- Functional Blocks and Connections:**
 - APC LB AMP:** Receives LB (1) and PB (2) signals, with feedback from VCC (20) and VEE.
 - RF SUMMING AMP:** Receives A (3), B (4), C (5), and D (6) signals, with feedback from VEE and VC (12).
 - RF EQ AMP:** Receives RFE (17) and RFO (16) signals, with feedback from VC (12).
 - FOCUS ERROR AMP:** Receives FE (15) and VC (12) signals, with feedback from VEE.
 - TRACKING ERROR AMP:** Receives TE (13) and VC (12) signals, with feedback from VEE.
 - VC BUFFER:** Receives VC (12) and provides feedback to the VC pin.
 - VC (Vertical Control) Section:** Includes VC pins (12, 13, 14, 15, 16, 17, 18, 19) and associated feedback loops to VEE and VCC.

— MAIN SECTION —

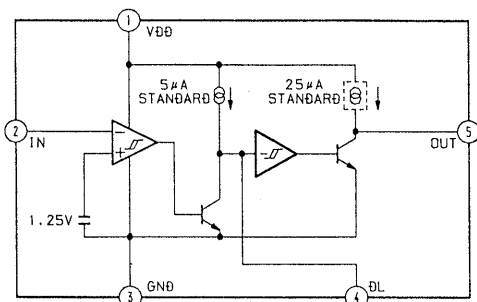
IC301 LB1641



IC303 CXD8505BQ



IC920 M51957AL



6-7. IC PIN FUNCTIONS

• IC101 Digital Signal Processor (CXD2545Q)

Pin No.	Pin Name	I/O	Function
1	SRON	O	Sled drive output (Not used)
2	SRDR	O	Sled drive output
3	SFON	O	Sled drive output (Not used)
4	TFDR	O	Tracking drive output
5	TRON	O	Tracking drive output (Not used)
6	TRDR	O	Tracking drive output
7	TFON	O	Tracking drive output (Not used)
8	FFDR	O	Focus drive output
9	FRON	O	Focus drive output (Not used)
10	FRDR	O	Focus drive output
11	FFON	O	Focus drive output (Not used)
12	VCOO	O	VCO output for analog EFM PLL (Not used)
13	VCOI	I	VCO output for analog EFM PLL (GND)
14	TEST	I	TEST pin connected normally to GND
15	DVss	–	Digital GND
16	TEST 2	I	TEST pin connected normally to GND
17	TEST 3	I	TEST pin connected normally to GND
18	PDO	O	Charge-pump output for analog EFM PLL (Not used)
19	VPCO	O	Charge-pump output for variable pitch PLL (Not used)
20	VCKI	I	Clock input from variable pitch external VCO (GND)
21	AVD2	–	Analog power supply
22	IGEN	I	Power supply pin for operational amplifiers
23	AVS2	–	Analog GND
24	ADIO	O	Input from A/D converter (Not used)
25	RFC	I	L.P.F capacitor connect pin for RFDC input (Not used)
26	RFDC	I	RF signal input
27	TE	I	Tracking error signal input
28	SE	I	Sled error signal input
29	FE	I	Focus error signal input
30	VC	I	Center voltage input pin
31	FILO	O	Filter output for master PLL
32	FILI	I	Filter input for master PLL
33	PCO	O	Charge-pump output for master PLL
34	CLTV	I	Control voltage input for master VCO
35	AVS1	–	Analog GND
36	RFAC	I	EFM signal input
37	BIAS	I	Asymmetry circuit constant current input
38	ASYI	I	Asymmetry compare voltage input
39	ASYO	O	EFM full swing output
40	AVD1	–	Analog power supply

Pin No.	Pin Name	I/O	Function
41	DVDD	–	Digital power supply
42	ASYE	I	Asymmetry circuit ON/OFF
43	PSSL	I	Audio data output mode selection input
44	WDCK	O	48-bit slot D/A interface. Word clock.
45	LRCK	O	48-bit slot D/A interface. LR clock.
46	DATA	O	DA 16 output when PSSL=1.48-bit slot serial data when PSSL=0
47	BCLK	O	DA 15 output when PSSL=1.48-bit slot bit clock when PSSL=0
48	64DATA	O	DA 14 output when PSSL=1.64-bit slot serial data when PSSL=0 (Not used)
49	64BCLK	O	DA 13 output when PSSL=1.64-bit slot bit clock when PSSL=0 (Not used)
50	64LRCK	O	DA 12 output when PSSL=1.64-bit slot LR clock when PSSL=0 (Not used)
51	GTOP	O	DA 11 output when PSSL=1.GTOP output when PSSL=0 (Not used)
52	XUGF	O	DA 10 output when PSSL=1.XUGF output when PSSL=0 (Not used)
53	XPLCK	O	DA 09 output when PSSL=1.XPLCK output when PSSL=0
54	GFS	O	DA 08 output when PSSL=1.GFS output when PSSL=0
55	RFCK	O	DA 07 output when PSSL=1.RFCK output when PSSL=0
56	C2PO	O	DA 06 output when PSSL=1.C2PO output when PSSL=0 (Not used)
57	XRAOF	O	DA 05 output when PSSL=1.XRAOF output when PSSL=0
58	MNT3	O	DA 04 output when PSSL=1.MNT3 output when PSSL=0
59	MNT2	O	DA 03 output when PSSL=1.MNT2 output when PSSL=0
60	MNT1	O	DA 02 output when PSSL=1.MNT1 output when PSSL=0
61	MNT0	O	DA 01 output when PSSL=1.MNT0 output when PSSL=0
62	XTAI	I	X'tal oscillator circuit input
63	XTAO	O	X'tal oscillator circuit output (Not used)
64	XTSL	I	X'tal selection input pin
65	DVss	–	Digital GND
66	FSTI	I	Reference clock input for Digital servo block
67	FSTO	O	2/3 divider output of pins 62, 63
68	FSOF	O	1/4 divider output of pins 62, 63
69	C16M	O	16.9344 MHz output (Not used)
70	MD2	I	Digital-out ON/OFF control pin
71	DOUT	O	Digital-out output pin
72	EMPH	O	Playback disc output in emphasis mode
73	WFCK	O	WFCK output
74	SCOR	O	Sub-code sync output
75	SBSO	O	Sub-P through Sub-W serial output
76	EXCK	I	Clock input for SBSO read-out
77	SUBQ	O	Sub-Q 80-bit output
78	SQCK	I	Clock input for SQSO read-out
79	MUTE	I	Muting selection pin
80	SENS	O	SENS output

Pin No.	Pin Name	I/O	Function
81	XRST	I	System reset
82	DIRC	I	Used in 1-track jump mode
83	SCLK	I	SENS serial data read-out clock
84	DFSW	I	DFCT selection pin
85	ATSK	I	Input pin for anti-shock
86	DATA	I	Serial data input, supplied from CPU
87	XLAT	I	Latch input, supplied from CPU
88	CLOCK	I	Serial data transfer clock input, supplied from CPU
89	COUT	O	Numbers of track counted signal output (Not used)
90	DVDD	–	Digital power supply
91	MIRR	O	Mirror signal output
92	DFCT	O	Defect signal output
93	FOK	O	Focus OK output
94	FSW	O	Output to select spindle motor output filter (Not used)
95	MON	O	Output to control ON/OFF of spindle motor (Not used)
96	NDP	O	Output to control spindle motor servo
97	MDS	O	Output to control spindle motor servo (Not used)
98	LOCK	O	GFS is sampled by 460 Hz. H when GFS is H (Not used)
99	SSTP	I	Input signal to detect disc inner most track
100	SFDR	O	Sled drive output

• IC801 CD Mech. Controller, FL Driver (CXP82316-063Q)

Pin No.	Pin Name	I/O	Function
1	TIMER	I	Timer switch input
2	RM (BUSIN)	I	Audio bus (Remote controller) input
3	+5V	–	Connected to +5V
4	OPEN	–	} (Remote controller)
5	OPEN	–	
6	(BUS-OUT)	O	Audio bus output (Not used)
7	PGML	O	Latch signal output pin to digital filter (IC303).
8	CLK	O	Serial clock output
9	SENSE	I	SENSE signal input
10	DATA	O	Serial data output
11	SQCK	O	Read out clock output for subcodeQ data
12	SUBQ	I	Subcode Q data input
13	OPEN	–	Not used (open)
14	AMUTE	O	Analog muting control signal output “H”:ON
15	LDON	O	Optical pickup laser diode control output “H”:ON
16	XLT	O	Serial data latch signal output
17	RVLED	O	VOLUME LED drive output (Noat used)
18	A. CUE	I	AUTO CUE switch input “L”:ON
19	A. PA	I	AUTO PAUSE switch input “L”:ON
20	LDOUT	O	} Loading motor control signal output.
21	LDIN	O	
22 to 27	KEY0 to KEY5	I	Key input (S803 to S843)
28	ADJ/AFADJ	–	ADJ, AFADJ test pin
29	IN/OUTSW	I	Loading IN/OUT switch input
30	RST	I	Reset signal input “L”:Reset
31	EXTAL	I	Clock input (4 MHz)
32	XTAL	O	Clock output (4MHz)
33	Vss	–	GND
34 to 41	OPEN	–	Not used (open)
42 to 62	S21 to S1	O	FL segment output
63 to 70	1G to 8G	O	FL grid output
71	VFDP (-30V)	–	–30V pin for FL display tube
72	VDD (+5V)	–	} +5V pin
73	–	I	
74	SEL1	I	} Connected to +5V
75	IN PORT	I	
76	IN PORT	–	
77	IN PORT	–	
78	SCOR	I	Read out timing signal input for subcode Q data
79	SEL2	–	Connected to +5V
80	SEL3	–	Connected to GND

SECTION 7

EXPLODED VIEWS

NOTE:

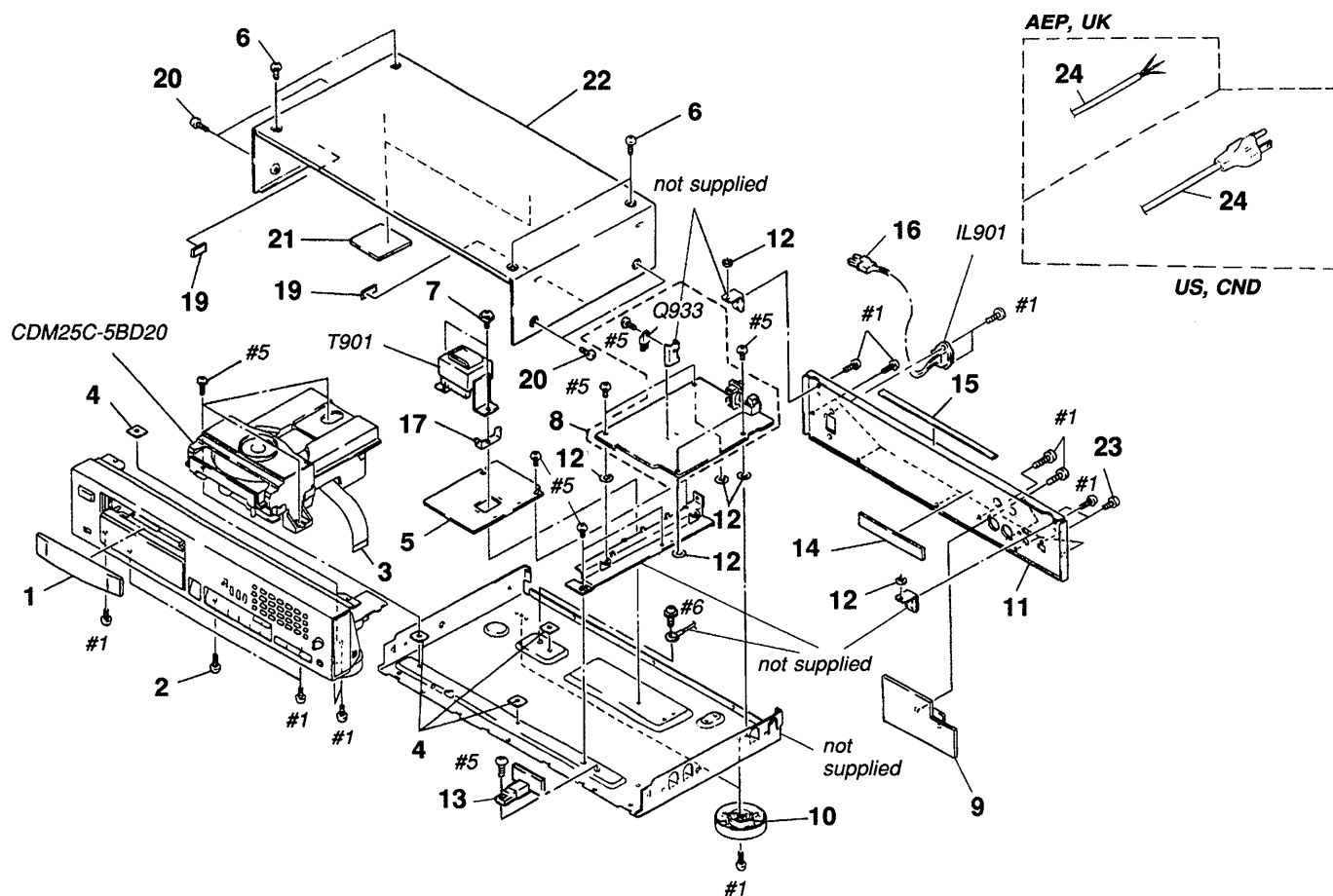
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.

• Abbreviation
CND :Canadian model

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

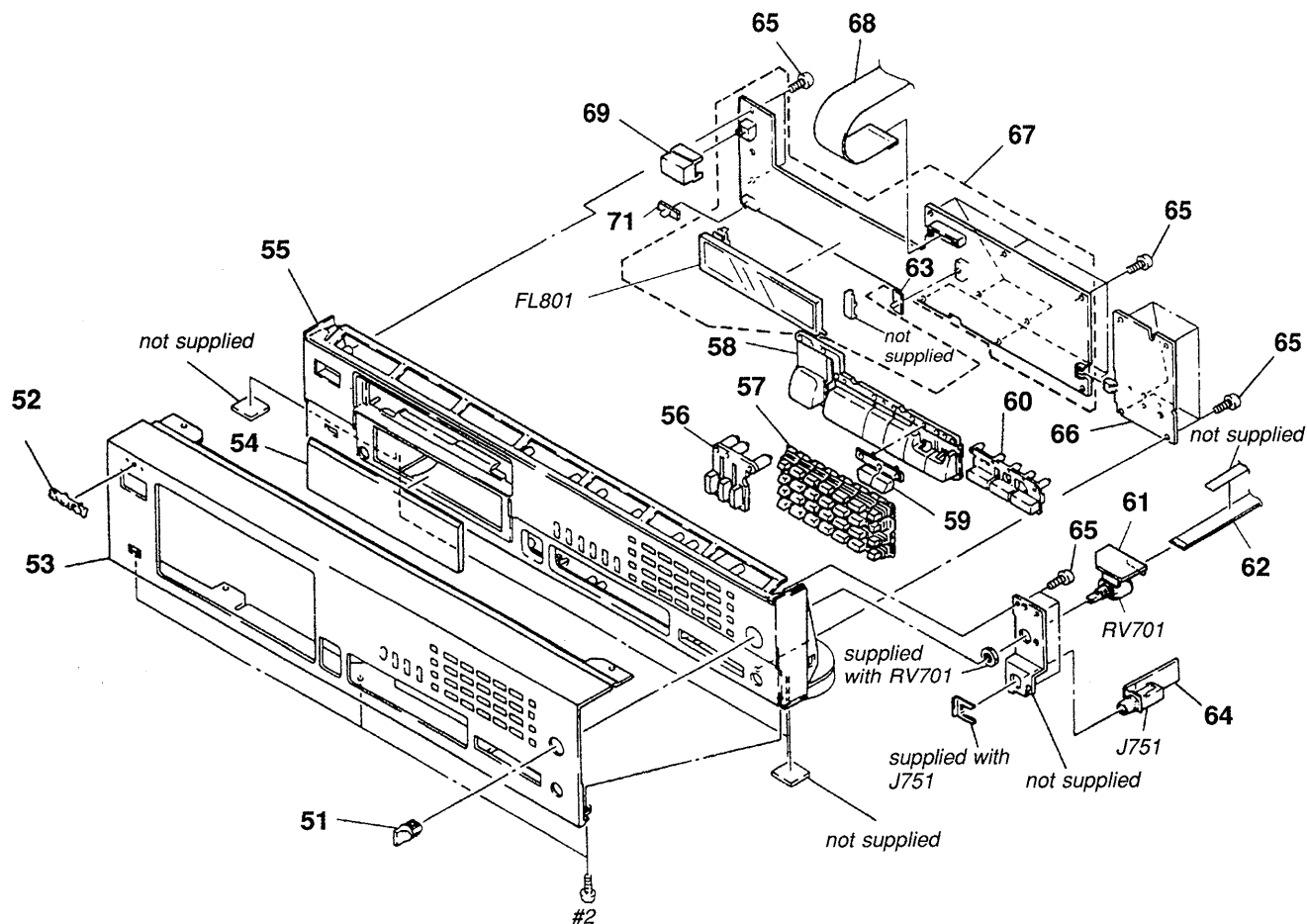
Les composants identifiés par une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

7-1. CASE AND BACK PANEL SECTION



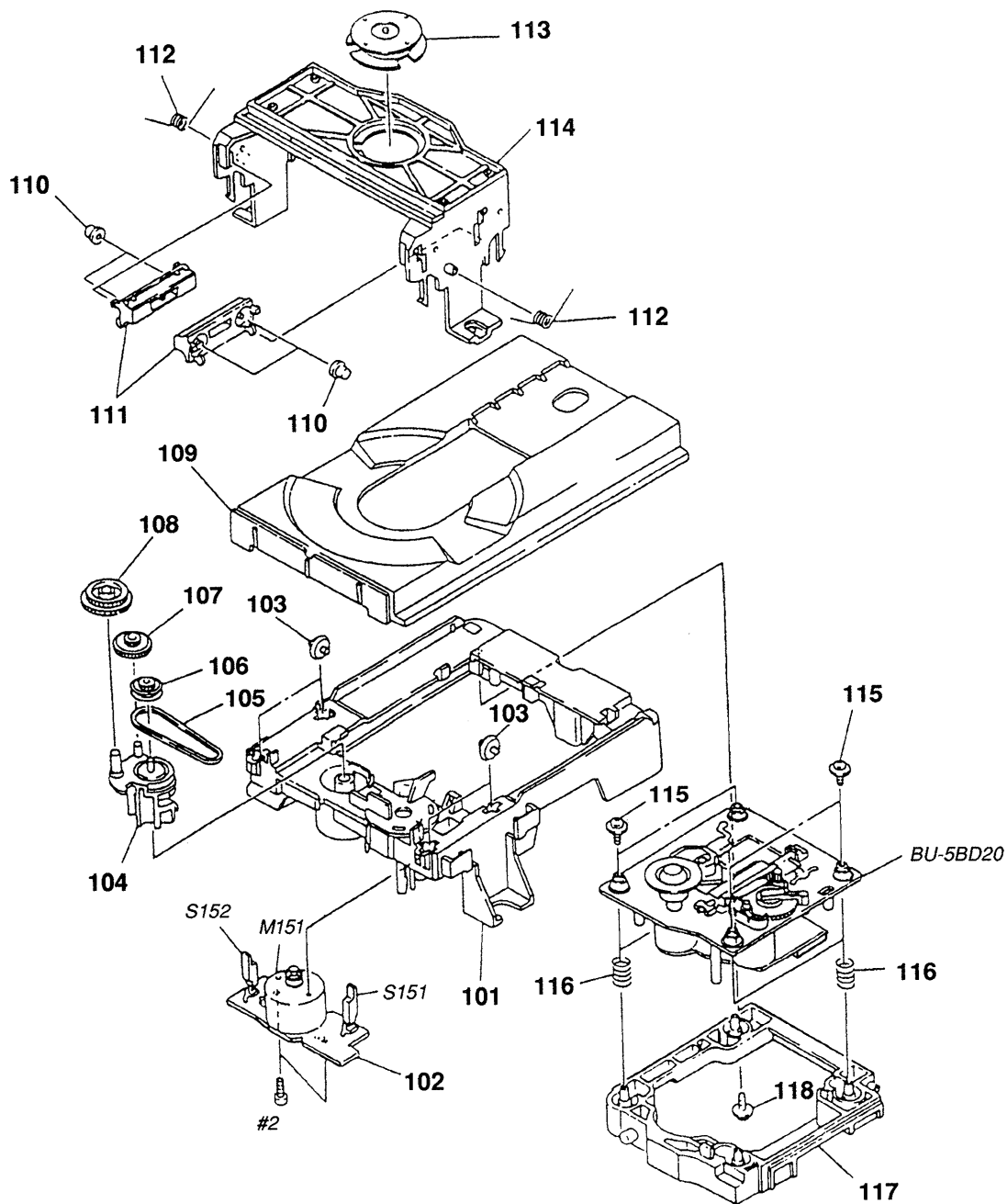
REF.No.	Part No.	Description	Remark	REF.No.	Part No.	Description	Remark
1	4-980-211-01	PANEL, LOADING		15	4-927-653-01	SHEET (F/P)	
2	3-703-685-21	SCREW (+BV 3X8)		16	1-776-999-11	CORD (WITH CONNECTOR)	
3	1-696-760-11	WIRE (FLAT TYPE)(23 CORE)		17	4-952-197-01	PLATE (TR), GROUND	
4	4-959-062-01	SHEET (CDM)		19	3-902-282-01	CUSHION (A)	
* 5	1-659-665-11	TRANS BOARD		20	3-704-366-21	SCREW (CASE)(M3X10)	
6	3-363-099-01	SCREW (CASE 3 TP2)		* 21	4-962-329-01	DAMPER	
7	4-886-821-11	SCREW, S TIGHT, +PTTWH 3X6		22	4-929-529-01	CASE	
* 8	A-4673-878-A	MAIN BOARD, COMPLETE		23	4-909-982-11	SCREW, TAPPING	
* 9	A-4673-883-A	XLR BOARD, COMPLETE		Δ 24	1-551-812-11	CORD POWER (US, CND)	
10	4-956-885-01	FOOT (F58175S2W)		Δ 24	1-590-910-11	CORD SET, POWER (AEP, UK)	
* 11	4-980-078-11	PANEL, BACK (US,CND)		Δ *IL901	1-580-375-21	INLET 3P (~ AC IN)	
* 11	4-980-078-21	PANEL, BACK (AEP,UK)		Q933	8-729-021-82	TRANSISTOR 2SD2396K	
12	4-955-939-01	WASHER (CASE)		Δ T901	1-429-487-11	TRANSFORMER, POWER (US,CND)	
* 13	1-660-405-11	TR BOARD		Δ T901	1-429-488-11	TRANSFORMER, POWER (AEP,UK)	
14	4-959-077-01	DAMPER					

7-2. FRONT PANEL SECTION



REF.No.	Part No.	Description	Remark	REF.No.	Part No.	Description	Remark
51	4-950-189-01	KNOB (A)(VOL)		63	3-917-216-02	KNOB (TIMER)(AUTO CUE/PAUSE)	
52	4-942-568-01	EMBLEM (NO.5), SONY		* 64	1-659-663-11	HEADPHONE BOARD	
53	4-980-077-01	PANEL, FRONT		65	4-951-620-01	SCREW (2.6X8), +BVTP	
54	4-980-080-01	PLATE, INDICATION		* 66	A-4673-881-A	DISP-2 BOARD, COMPLETE	
55	X-4943-372-1	BASE, PANEL		* 67	A-4673-880-A	DISP-1 BOARD, COMPLETE	
56	4-955-934-11	BUTTON (FILE)		68	1-751-713-11	WIRE (FLAT TYPE)(21 CORE)	
57	4-955-935-11	BUTTON (20 KEY)		69	4-947-034-31	BUTTON (POWER)	
58	4-980-079-01	BUTTON (PLAY)		71	4-922-518-11	KNOB (TIMER)(TIMER PLAY)	
59	4-955-932-31	BUTTON (MMS)		FL801	1-519-757-11	INDICATOR TUBE, FLUORESCENT	
60	4-955-933-11	BUTTON (MODE 3)		J751	1-770-307-11	JACK (LARGE TYPE)(PHONES)	
* 61	1-659-668-11	VR BOARD		RV701	1-225-217-11	RES, VAR, CARBON 10K/10K (PHONES LEVEL)	
62	1-751-712-11	WIRE (FLAT TYPE)(11 CORE)					

7-3. MECHANISM DECK SECTION (CDM25C-5BD20)



REF.No.	Part No.	Description	Remark	REF.No.	Part No.	Description	Remark
* 101	4-954-190-01	BASE (MD)		111	4-954-199-01	PLATE, SLIDE	
* 102	1-646-970-11	LOADING BOARD		112	4-954-195-01	SPRING, TORSION	
103	4-954-193-01	ROLLER (A)		113	1-452-824-11	MAGNET	
104	4-933-109-01	CAM		* 114	4-954-192-01	HOLDER (M)	
105	4-927-649-01	BELT		115	4-933-134-01	SCREW (+PTPWH M2.6X6)	
106	4-927-651-01	PULLEY (S)		116	4-959-996-01	SPRING (932), COMPRESSION	
107	4-967-268-01	GEAR (C)		117	4-933-129-01	HOLDER (BU)	
108	4-933-107-01	GEAR (PL)		* 118	4-917-583-21	BRACKET, YOKE	
109	4-961-794-01	TABLE, DISK		M151	A-4604-363-A	MOTOR (L) ASSY (LOADING)	
110	4-954-194-01	ROLLER (B)		S151	1-572-086-11	SWITCH, LEAF (LOAD OUT)	
				S152	1-572-086-11	SWITCH, LEAF (LOAD IN)	

The components marked with the symbol Δ or dotted lines are critical for safety. Replace only with the specified components.

Les composants identifiés par le symbole Δ sont critiques pour la sécurité. Remplacer uniquement par les composants spécifiés.

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

<u>Remark</u>	<u>REF.No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Remark</u>
	156	4-917-564-01	GEAR (P), FLATNESS	
	* 157	A-4673-509-A	BD BOARD, COMPLETE	
	M101	X-4917-523-3	MOTOR ASSY (SPINDLE)	
	M102	X-4917-504-1	MOTOR ASSY (SLED)	
	S101	1-572-085-11	SWITCH, LEAF (LIMIT)	

SECTION 8

ELECTRICAL PARTS LIST

BD

NOTE:

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

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

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

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- RESISTORS
All resistors are in ohms
METAL: Metal-film resistor
F : nonflammable
- 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-4673-509-A	BD BOARD, COMPLETE *****				< TRANSISTOR >	
		< CAPACITOR >		Q101	8-729-010-08	TRANSISTOR MSB710-R	
						< RESISTOR >	
C101	1-163-005-11	CERAMIC CHIP 470PF	10% 50V	R101	1-216-077-00	METAL CHIP 15K 5%	1/10W
C102	1-163-038-91	CERAMIC CHIP 0.1uF	25V	R102	1-216-097-91	METAL GLAZE 100K 5%	1/10W
C103	1-163-005-11	CERAMIC CHIP 470PF	10% 50V	R103	1-216-077-00	METAL CHIP 15K 5%	1/10W
C105	1-135-155-21	TANTALUM CHIP 4.7uF	10% 16V	R104	1-216-085-00	METAL CHIP 33K 5%	1/10W
C106	1-164-346-11	CERAMIC CHIP 1uF	16V	R105	1-216-097-91	METAL GLAZE 100K 5%	1/10W
C107	1-164-346-11	CERAMIC CHIP 1uF	16V	R106	1-216-061-00	METAL CHIP 3.3K 5%	1/10W
C108	1-163-035-00	CERAMIC CHIP 0.047uF	50V	R107	1-216-061-00	METAL CHIP 3.3K 5%	1/10W
C109	1-163-145-00	CERAMIC CHIP 0.0015uF	5% 50V	R108	1-216-073-00	METAL CHIP 10K 5%	1/10W
C110	1-163-017-00	CERAMIC CHIP 0.0047uF	5% 50V	R109	1-216-121-91	METAL GLAZE 1M 5%	1/10W
C111	1-163-251-11	CERAMIC CHIP 100PF	5% 50V	R110	1-216-025-91	METAL GLAZE 100 5%	1/10W
C112	1-163-038-91	CERAMIC CHIP 0.1uF	25V	R112	1-216-049-91	METAL GLAZE 1K 5%	1/10W
C113	1-163-038-91	CERAMIC CHIP 0.1uF	25V	R123	1-216-073-00	METAL CHIP 10K 5%	1/10W
C115	1-126-607-11	ELECT CHIP 47uF	20% 4V	R124	1-216-097-91	METAL GLAZE 100K 5%	1/10W
C116	1-126-607-11	ELECT CHIP 47uF	20% 4V	R125	1-216-049-91	METAL GLAZE 1K 5%	1/10W
C117	1-126-209-11	ELECT 100uF	20% 4V	R126	1-216-049-91	METAL GLAZE 1K 5%	1/10W
C118	1-163-275-11	CERAMIC CHIP 0.001uF	5% 50V	R127	1-216-049-91	METAL GLAZE 1K 5%	1/10W
C119	1-163-231-11	CERAMIC CHIP 15PF	5% 50V	R131	1-216-037-00	METAL CHIP 330 5%	1/10W
C123	1-164-232-11	CERAMIC CHIP 0.01uF	50V	R135	1-216-295-91	CONDUCTOR, CHIP (2012)	
C124	1-164-005-11	CERAMIC CHIP 0.47uF	25V	R136	1-216-295-91	CONDUCTOR, CHIP (2012)	
C140	1-163-038-91	CERAMIC CHIP 0.1uF	25V	R137	1-216-295-91	CONDUCTOR, CHIP (2012)	
C141	1-163-038-91	CERAMIC CHIP 0.1uF	25V	R138	1-216-295-91	CONDUCTOR, CHIP (2012)	
C151	1-163-237-11	CERAMIC CHIP 27PF	5% 50V	R141	1-216-089-91	METAL GLAZE 47K 5%	1/10W
C153	1-163-038-91	CERAMIC CHIP 0.1uF	25V	R142	1-216-081-00	METAL CHIP 22K 5%	1/10W
C154	1-164-336-11	CERAMIC CHIP 0.33uF	25V	R143	1-216-103-91	METAL GLAZE 180K 5%	1/10W
C156	1-163-237-11	CERAMIC CHIP 27PF	5% 50V	R144	1-216-103-91	METAL GLAZE 180K 5%	1/10W
C157	1-163-145-00	CERAMIC CHIP 0.0015uF	5% 50V	R146	1-216-073-00	METAL CHIP 10K 5%	1/10W
C159	1-163-019-00	CERAMIC CHIP 0.0068uF	10% 50V	R147	1-216-081-00	METAL CHIP 22K 5%	1/10W
C161	1-163-038-91	CERAMIC CHIP 0.1uF	25V	R148	1-216-001-00	METAL CHIP 10 5%	1/10W
		< CONNECTOR >		R149	1-216-003-11	METAL GLAZE 12 5%	1/10W
CN101	1-770-072-11	CONNECTOR, FFC 23P		R158	1-216-111-91	METAL GLAZE 390K 5%	1/10W
CN102	1-770-014-11	CONNECTOR, FFC/FPC 16P		R159	1-216-101-00	METAL CHIP 150K 5%	1/10W
		< IC >		R160	1-216-295-91	CONDUCTOR, CHIP (2012)	
IC101	8-752-369-78	IC CXD2545Q		R161	1-216-308-00	METAL CHIP 4.7 5%	1/10W
IC102	8-759-176-09	IC BA6392FP		R162	1-216-101-00	METAL CHIP 150K 5%	1/10W
IC103	8-752-072-45	IC CXA1821M-T6				< SWITCH >	
				S101	1-572-085-11	SWITCH, LEAF (LIMIT)	

BD

DISP-1

DISP-2

REF.No. Part No. Description Remark

* A-4673-880-A DISP-1 BOARD, COMPLETE

< CAPACITOR >

C801	1-161-494-00	CERAMIC	0.022uF	25V
C802	1-161-494-00	CERAMIC	0.022uF	25V
C803	1-164-159-11	CERAMIC	0.1uF	50V
C804	1-161-494-00	CERAMIC	0.022uF	25V
C805	1-164-159-11	CERAMIC	0.1uF	50V
C807	1-161-494-00	CERAMIC	0.022uF	25V

< CONNECTOR >

CN801	1-750-999-11	CONNECTOR, FFC/FPC 21P
CN803	1-750-194-11	CONNECTOR, BOARD TO BOARD 4P

< DIODE >

D801	8-719-110-04	DIODE RD7.5ES-B3
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< FLUORESCENT INDICATOR >

FL801	1-519-757-11	INDICATOR TUBE, FLUORESCENT
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< IC >

IC801	8-752-858-12	IC CXP82316-063Q
IC802	8-741-810-59	IC SBX1810-59 (IR)

< TRANSISTOR >

Q801	8-729-900-80	TRANSISTOR DTC114ES
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< RESISTOR >

R800	1-249-433-11	CARBON 22K	5%	1/4W	
R802	1-249-441-11	CARBON 100K	5%	1/4W	
R804	1-249-427-11	CARBON 6.8K	5%	1/4W	F
R805	1-249-427-11	CARBON 6.8K	5%	1/4W	F
R806	1-249-427-11	CARBON 6.8K	5%	1/4W	F
R807	1-249-427-11	CARBON 6.8K	5%	1/4W	F
R808	1-249-427-11	CARBON 6.8K	5%	1/4W	F
R809	1-249-427-11	CARBON 6.8K	5%	1/4W	F
R810	1-249-427-11	CARBON 6.8K	5%	1/4W	F
R811	1-249-427-11	CARBON 6.8K	5%	1/4W	F
R812	1-249-415-11	CARBON 680	5%	1/4W	F
R813	1-249-417-11	CARBON 1K	5%	1/4W	F
R814	1-249-419-11	CARBON 1.5K	5%	1/4W	F
R815	1-249-421-11	CARBON 2.2K	5%	1/4W	F
R816	1-249-423-11	CARBON 3.3K	5%	1/4W	F
R817	1-249-427-11	CARBON 6.8K	5%	1/4W	F
R818	1-249-431-11	CARBON 15K	5%	1/4W	F
R819	1-249-415-11	CARBON 680	5%	1/4W	F
R820	1-249-417-11	CARBON 1K	5%	1/4W	F

REF.No. Part No. Description Remark

R821	1-249-419-11	CARBON 1.5K	5%	1/4W	F
R822	1-249-421-11	CARBON 2.2K	5%	1/4W	F
R823	1-249-423-11	CARBON 3.3K	5%	1/4W	F
R824	1-249-427-11	CARBON 6.8K	5%	1/4W	F
R825	1-249-431-11	CARBON 15K	5%	1/4W	F
R826	1-249-415-11	CARBON 680	5%	1/4W	F
R827	1-249-417-11	CARBON 1K	5%	1/4W	F
R828	1-249-419-11	CARBON 1.5K	5%	1/4W	F
R829	1-249-421-11	CARBON 2.2K	5%	1/4W	F
R830	1-249-423-11	CARBON 3.3K	5%	1/4W	F
R831	1-249-427-11	CARBON 6.8K	5%	1/4W	F
R832	1-249-429-11	CARBON 10K	5%	1/4W	
R897	1-249-429-11	CARBON 10K	5%	1/4W	
R898	1-249-429-11	CARBON 10K	5%	1/4W	
R899	1-249-429-11	CARBON 10K	5%	1/4W	

< SWITCH >

S801	1-554-118-00	SWITCH, PUSH (1 KEY)(POWER)
S803	1-554-303-21	SWITCH, TACTILE (PLAY ►)
S804	1-554-303-21	SWITCH, TACTILE (OPEN/CLOSE ▲)
S805	1-554-303-21	SWITCH, TACTILE (STOP ■)
S806	1-554-303-21	SWITCH, TACTILE (◀◀)
S807	1-554-303-21	SWITCH, TACTILE (▶▶▶)
S808	1-554-303-21	SWITCH, TACTILE (▶▶)
S809	1-554-303-21	SWITCH, TACTILE (◀◀)
S810	1-554-303-21	SWITCH, TACTILE (PAUSE ■■)
S813	1-554-303-21	SWITCH, TACTILE (11)
S814	1-554-303-21	SWITCH, TACTILE (16)
S815	1-554-303-21	SWITCH, TACTILE (17)
S816	1-554-303-21	SWITCH, TACTILE (12)
S817	1-554-303-21	SWITCH, TACTILE (7)
S818	1-554-303-21	SWITCH, TACTILE (A-B)

S819	1-554-303-21	SWITCH, TACTILE (REPEAT)
S820	1-554-303-21	SWITCH, TACTILE (TIME)
S822	1-554-303-21	SWITCH, TACTILE (1)
S824	1-554-303-21	SWITCH, TACTILE (6)
S825	1-554-303-21	SWITCH, TACTILE (2)

S898	1-762-234-11	SWITCH, SLIDE (AUTO CUE/PAUSE)
S899	1-570-157-51	SWITCH, SLIDE (TIMER)

< VIBRATOR >

X801	1-577-358-21	VIBRATOR, CERAMIC (4MHz)
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* A-4673-881-A DISP-2 BOARD, COMPLETE

< CONNECTOR >

CN804	1-750-185-11	CONNECTOR, BOARD TO BOARD 4P
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DISP-2

HEADPHONE

LOADING

MAIN

REF.No.	Part No.	Description	Remark
< RESISTOR >			
R834	1-249-415-11	CARBON 680 5% 1/4W F	
R835	1-249-417-11	CARBON 1K 5% 1/4W F	
R836	1-249-419-11	CARBON 1.5K 5% 1/4W F	
R837	1-249-421-11	CARBON 2.2K 5% 1/4W F	
R838	1-249-423-11	CARBON 3.3K 5% 1/4W F	
R839	1-249-427-11	CARBON 6.8K 5% 1/4W F	
R840	1-249-431-11	CARBON 15K 5% 1/4W F	
R841	1-249-415-11	CARBON 680 5% 1/4W F	
R842	1-249-417-11	CARBON 1K 5% 1/4W F	
R843	1-249-421-11	CARBON 2.2K 5% 1/4W F	
R844	1-249-423-11	CARBON 3.3K 5% 1/4W F	
R845	1-249-427-11	CARBON 6.8K 5% 1/4W F	
R846	1-249-431-11	CARBON 15K 5% 1/4W F	
R847	1-249-415-11	CARBON 680 5% 1/4W F	
R848	1-249-417-11	CARBON 1K 5% 1/4W F	
R896	1-249-419-11	CARBON 1.5K 5% 1/4W F	
< SWITCH >			
S826	1-554-303-21	SWITCH, TACTILE (19)	
S827	1-554-303-21	SWITCH, TACTILE (14)	
S828	1-554-303-21	SWITCH, TACTILE (9)	
S829	1-554-303-21	SWITCH, TACTILE (4)	
S830	1-554-303-21	SWITCH, TACTILE (3)	
S831	1-554-303-21	SWITCH, TACTILE (8)	
S832	1-554-303-21	SWITCH, TACTILE (13)	
S833	1-554-303-21	SWITCH, TACTILE (18)	
S834	1-554-303-21	SWITCH, TACTILE (FADER)	
S835	1-554-303-21	SWITCH, TACTILE (CLEAR)	
S836	1-554-303-21	SWITCH, TACTILE (CHECK)	
S837	1-554-303-21	SWITCH, TACTILE (5)	
S838	1-554-303-21	SWITCH, TACTILE (10)	
S839	1-554-303-21	SWITCH, TACTILE (15)	
S840	1-554-303-21	SWITCH, TACTILE (20)	
S841	1-554-303-21	SWITCH, TACTILE (CONTINUE)	
S842	1-554-303-21	SWITCH, TACTILE (SHUFFLE)	
S843	1-554-303-21	SWITCH, TACTILE (PROGRAM)	
S897	1-554-303-21	SWITCH, TACTILE (>20)	

*	1-659-663-11	HEADPHONE BOARD	

< CAPACITOR >			
C471	1-162-294-31	CERAMIC 0.001uF 10% 50V	
C571	1-162-294-31	CERAMIC 0.001uF 10% 50V	
C752	1-164-159-11	CERAMIC 0.1uF 50V	
< JACK >			
J751	1-770-307-11	JACK (LARGE TYPE)(PHONES)	

REF.No.	Part No.	Description	Remark

*	1-646-970-11	LOADING BOARD	

< CONNECTOR >			
* CN151	1-568-943-11	PIN, CONNECTOR 5P	
< SWITCH >			
S151	1-572-086-11	SWITCH, LEAF (LOAD OUT)	
S152	1-572-086-11	SWITCH, LEAF (LOAD IN)	

*	A-4673-878-A	MAIN BOARD, COMPLETE	

	7-682-548-04	SCREW +BVTT 3X8 (S)	
< CAPACITOR >			
C301	1-164-159-11	CERAMIC 0.1uF 50V	
C303	1-162-306-11	CERAMIC 0.01uF 30% 16V	
C304	1-161-494-00	CERAMIC 0.022uF 25V	
C305	1-164-159-11	CERAMIC 0.1uF 50V	
C306	1-126-962-11	ELECT 3.3uF 20% 50V	
C353	1-162-290-31	CERAMIC 470PF 10% 50V	
C356	1-164-159-11	CERAMIC 0.1uF 50V	
C357	1-162-208-31	CERAMIC 24PF 5% 50V	
C358	1-102-508-91	CERAMIC 10PF 0.5PF 50V	
C359	1-102-508-91	CERAMIC 10PF 0.5PF 50V	
C360	1-130-495-00	MYLAR 0.1uF 5% 50V	
C361	1-126-063-11	ELECT 100uF 20% 50V	
C392	1-164-159-11	CERAMIC 0.1uF 50V	
C401	1-104-665-11	ELECT 100uF 20% 16V	
C402	1-164-159-11	CERAMIC 0.1uF 50V	
C403	1-124-122-11	ELECT 100uF 20% 50V	
C404	1-130-495-00	MYLAR 0.1uF 5% 50V	
C405	1-130-495-00	MYLAR 0.1uF 5% 50V	
C406	1-130-495-00	MYLAR 0.1uF 5% 50V	
C407	1-130-495-00	MYLAR 0.1uF 5% 50V	
C408	1-164-159-11	CERAMIC 0.1uF 50V	
C409	1-107-611-11	MICA 100PF 5% 500V	
C410	1-102-816-00	CERAMIC 120PF 5% 50V	
C411	1-102-816-00	CERAMIC 120PF 5% 50V	
C412	1-106-343-00	MYLAR 1000PF 5% 200V	
C413	1-130-484-00	MYLAR 0.012uF 5% 50V	
C414	1-136-850-11	FILM 0.1uF 5% 63V	
C415	1-124-918-11	ELECT 47uF 20% 63V	
C501	1-104-665-11	ELECT 100uF 20% 16V	
C502	1-164-159-11	CERAMIC 0.1uF 50V	
C503	1-124-122-11	ELECT 100uF 20% 50V	
C504	1-130-495-00	MYLAR 0.1uF 5% 50V	

MAIN

REF.No.	Part No.	Description	Remark	REF.No.	Part No.	Description	Remark
C505	1-130-495-00	MYLAR	0.1uF 5% 50V	< IC >			
C506	1-130-495-00	MYLAR	0.1uF 5% 50V	IC301	8-759-822-09	IC LB1641	
C507	1-130-495-00	MYLAR	0.1uF 5% 50V	IC303	8-759-370-62	IC CXD8505BQ	
C508	1-164-159-11	CERAMIC	0.1uF 50V	IC304	8-759-710-59	IC NJM4580D-D	
C509	1-107-611-11	MICA	100PF 5% 500V	IC305	8-749-921-12	IC GP1F32T (DIGITAL OUT OPTICAL)	
C510	1-102-816-00	CERAMIC	120PF 5% 50V	IC401	8-759-971-80	IC AD712JN	
C511	1-102-816-00	CERAMIC	120PF 5% 50V	IC501	8-759-971-80	IC AD712JN	
C512	1-106-343-00	MYLAR	1000PF 5% 200V	IC920	8-759-636-16	IC M51957AL	
C513	1-130-484-00	MYLAR	0.012uF 5% 50V	IC930	8-759-710-59	IC NJM4580D-D	
C514	1-136-850-11	FILM	0.1uF 5% 63V	IC931	8-759-710-59	IC NJM4580D-D	
C515	1-124-918-11	ELECT	47uF 20% 63V	< JACK >			
C910	1-107-611-11	MICA	100PF 5% 500V	J501	1-766-507-11	JACK, P1N 2P (ANALOG LINE OUT)	
C911	1-124-572-11	ELECT	100uF 20% 63V	< COIL >			
C915	1-124-907-11	ELECT	10uF 20% 50V	L301	1-410-322-11	INDUCTOR 3.3uH	
C920	1-162-294-31	CERAMIC	0.001uF 10% 50V	L302	1-410-322-11	INDUCTOR 3.3uH	
C921	1-126-962-11	ELECT	3.3uF 20% 50V	L303	1-410-503-11	INDUCTOR 3.3uH	
C922	1-164-159-11	CERAMIC	0.1uF 50V	< TRANSISTOR >			
C923	1-161-494-00	CERAMIC	0.022uF 25V	Q301	8-729-900-65	TRANSISTOR DTA144ES	
C930	1-124-360-00	ELECT	1000uF 20% 16V	Q401	8-729-231-55	TRANSISTOR 2SC2878-AB	
C931	1-124-523-11	ELECT	4700uF 20% 16V	Q403	8-729-231-55	TRANSISTOR 2SC2878-AB	
C932	1-104-665-11	ELECT	100uF 20% 16V	Q404	8-729-900-65	TRANSISTOR DTA144ES	
C935	1-124-910-11	ELECT	47uF 20% 50V	Q501	8-729-231-55	TRANSISTOR 2SC2878-AB	
C937	1-136-850-11	FILM	0.1uF 5% 63V	Q503	8-729-231-55	TRANSISTOR 2SC2878-AB	
C939	1-124-916-11	ELECT	22uF 20% 63V	Q504	8-729-900-65	TRANSISTOR DTA144ES	
C941	1-126-052-11	ELECT	100uF 20% 50V	Q910	8-729-019-64	TRANSISTOR 2SB1041	
C942	1-124-120-11	ELECT	220uF 20% 25V	Q911	8-729-119-76	TRANSISTOR 2SA1175-HFE	
C943	1-162-294-31	CERAMIC	0.001uF 10% 50V	Q920	8-729-900-89	TRANSISTOR DTC144ES	
< CONNECTOR >				Q930	8-729-104-18	TRANSISTOR 2SC3514-Q	
CN301	1-750-428-11	CONNECTOR, FFC/FPC 23P		Q931	8-729-900-89	TRANSISTOR DTC144ES	
CN302	1-750-426-11	CONNECTOR, FFC/FPC 21P		Q932	8-729-900-65	TRANSISTOR DTA144ES	
* CN304	1-750-416-11	CONNECTOR, FFC/FPC 11P		Q933	8-729-021-82	TRANSISTOR 2SD2396K	
CN951	1-564-510-11	PLUG, CONNECTOR 7P		< RESISTOR >			
< DIODE >				R300	1-249-427-11	CARBON 6.8K 5% 1/4W F	
D301	8-719-109-82	DIODE RD4.7ES-B3		R301	1-249-417-11	CARBON 1K 5% 1/4W F	
D302	8-719-987-63	DIODE 1N4148M		R302	1-249-417-11	CARBON 1K 5% 1/4W F	
D303	8-719-987-63	DIODE 1N4148M		R303	1-249-417-11	CARBON 1K 5% 1/4W F	
D910	8-719-200-82	DIODE 11ES2		R304	1-249-417-11	CARBON 1K 5% 1/4W F	
D911	8-719-987-63	DIODE 1N4148M		R305	1-249-427-11	CARBON 6.8K 5% 1/4W F	
D912	8-719-113-76	DIODE RD27ES-T2B2		R306	1-247-895-00	CARBON 470K 5% 1/4W	
D930	8-719-210-21	DIODE 11EQS04		R308	1-249-429-11	CARBON 10K 5% 1/4W	
D931	8-719-210-21	DIODE 11EQS04		R312	1-249-417-11	CARBON 1K 5% 1/4W F	
D932	8-719-210-21	DIODE 11EQS04		R313	1-249-409-11	CARBON 220 5% 1/4W F	
D933	8-719-210-21	DIODE 11EQS04		R314	1-249-425-11	CARBON 4.7K 5% 1/4W F	
D934	8-719-987-63	DIODE 1N4148M		R317	1-249-441-11	CARBON 100K 5% 1/4W	
D935	8-719-109-82	DIODE RD4.7ES-B3		R395	1-249-425-11	CARBON 4.7K 5% 1/4W F	
D936	8-719-987-63	DIODE 1N4148M		R401	1-249-435-11	CARBON 33K 5% 1/4W	
D937	8-719-114-30	DIODE RD5.1JS-B2		R402	1-249-435-11	CARBON 33K 5% 1/4W	
< GROUND TERMINAL >							
EB601	1-537-770-21	TERMINAL BOARD, GROUND					

MAIN

TR

TRANS

VR

REF.No.	Part No.	Description			Remark	REF.No.	Part No.	Description			Remark
R403	1-249-435-11	CARBON 33K	5%	1/4W		R915	1-249-429-11	CARBON 10K	5%	1/4W	
R404	1-249-435-11	CARBON 33K	5%	1/4W		R916	1-249-438-11	CARBON 56K	5%	1/4W	
R405	1-249-432-11	CARBON 18K	5%	1/4W		R920	1-249-436-11	CARBON 39K	5%	1/4W	
R406	1-249-432-11	CARBON 18K	5%	1/4W		R921	1-249-431-11	CARBON 15K	5%	1/4W	
R407	1-249-433-11	CARBON 22K	5%	1/4W		R922	1-249-423-11	CARBON 3.3K	5%	1/4W	F
R408	1-249-433-11	CARBON 22K	5%	1/4W		R930	1-249-411-11	CARBON 330	5%	1/4W	
R409	1-247-830-11	CARBON 910	5%	1/4W		R931	1-249-421-11	CARBON 2.2K	5%	1/4W	F
R410	1-249-420-11	CARBON 1.8K	5%	1/4W	F	R932	1-249-436-11	CARBON 39K	5%	1/4W	
R411	1-247-891-00	CARBON 330K	5%	1/4W		R933	1-247-807-31	CARBON 100	5%	1/4W	
R412	1-249-409-11	CARBON 220	5%	1/4W	F	R934	1-249-421-11	CARBON 2.2K	5%	1/4W	F
R413	1-249-409-11	CARBON 220	5%	1/4W	F	R935	1-249-422-11	CARBON 2.7K	5%	1/4W	F
R414	1-249-393-11	CARBON 10	5%	1/4W	F	R937	1-249-417-11	CARBON 1K	5%	1/4W	F
R415	1-249-409-11	CARBON 220	5%	1/4W	F	R938	1-247-807-31	CARBON 100	5%	1/4W	
R417	1-249-425-11	CARBON 4.7K	5%	1/4W	F	R940	1-249-423-11	CARBON 3.3K	5%	1/4W	F
R418	1-249-441-11	CARBON 100K	5%	1/4W		R941	1-249-428-11	CARBON 8.2K	5%	1/4W	F
R419	1-249-425-11	CARBON 4.7K	5%	1/4W	F	R942	1-249-425-11	CARBON 4.7K	5%	1/4W	F
R420	1-247-826-00	CARBON 620	5%	1/4W		R943	1-249-425-11	CARBON 4.7K	5%	1/4W	F
R451	1-249-435-11	CARBON 33K	5%	1/4W				< VIBRATOR >			
R452	1-249-435-11	CARBON 33K	5%	1/4W							
R453	1-249-429-11	CARBON 10K	5%	1/4W		X301	1-579-161-11	VIBRATOR, CRYSTAL (45MHz)			
R454	1-249-435-11	CARBON 33K	5%	1/4W							
R455	1-249-402-11	CARBON 56	5%	1/4W	F						
R501	1-249-435-11	CARBON 33K	5%	1/4W							
R502	1-249-435-11	CARBON 33K	5%	1/4W							
R503	1-249-435-11	CARBON 33K	5%	1/4W							
R504	1-249-435-11	CARBON 33K	5%	1/4W							
R505	1-249-432-11	CARBON 18K	5%	1/4W							
R506	1-249-432-11	CARBON 18K	5%	1/4W							
R507	1-249-433-11	CARBON 22K	5%	1/4W							
R508	1-249-433-11	CARBON 22K	5%	1/4W							
R509	1-247-830-11	CARBON 910	5%	1/4W							
R510	1-249-420-11	CARBON 1.8K	5%	1/4W	F						
R511	1-247-891-00	CARBON 330K	5%	1/4W							
R512	1-249-409-11	CARBON 220	5%	1/4W	F						
R513	1-249-409-11	CARBON 220	5%	1/4W	F						
R514	1-249-393-11	CARBON 10	5%	1/4W	F						
R515	1-249-409-11	CARBON 220	5%	1/4W	F						
R517	1-249-425-11	CARBON 4.7K	5%	1/4W	F						
R518	1-249-441-11	CARBON 100K	5%	1/4W							
R519	1-249-425-11	CARBON 4.7K	5%	1/4W	F						
R520	1-247-826-00	CARBON 620	5%	1/4W							
R541	1-249-435-11	CARBON 33K	5%	1/4W							
R542	1-249-435-11	CARBON 33K	5%	1/4W							
R543	1-249-429-11	CARBON 10K	5%	1/4W							
R544	1-249-435-11	CARBON 33K	5%	1/4W							
R545	1-249-402-11	CARBON 56	5%	1/4W	F						
R910	1-249-390-11	CARBON 5.6	5%	1/4W	F						
R911	1-249-390-11	CARBON 5.6	5%	1/4W	F						
R912	1-249-423-11	CARBON 3.3K	5%	1/4W	F						
R913	1-249-423-11	CARBON 3.3K	5%	1/4W	F						

REF.No.	Part No.	Description	Remark
< VARIABLE RESISTOR >			
RV701	1-225-217-11	RES, VAR, CARBON 10K/10K (PHONES LEVEL)	

*	A-4673-883-A	XLR BOARD, COMPLETE	

< CAPACITOR >			
C397	1-124-273-00	ELECT 3.3uF 20% 50V	
C398	1-136-165-00	FILM 0.1uF 5% 50V	
C399	1-136-165-00	FILM 0.1uF 5% 50V	
C495	1-126-051-11	ELECT 47uF 20% 50V	
C496	1-107-597-11	CERAMIC 22PF 10% 500V	
C497	1-107-597-11	CERAMIC 22PF 10% 500V	
C498	1-126-024-11	ELECT 220uF 20% 25V	
C499	1-126-024-11	ELECT 220uF 20% 25V	
C595	1-126-051-11	ELECT 47uF 20% 50V	
C596	1-107-597-11	CERAMIC 22PF 10% 500V	
C597	1-107-597-11	CERAMIC 22PF 10% 500V	
C598	1-126-024-11	ELECT 220uF 20% 25V	
C599	1-126-024-11	ELECT 220uF 20% 25V	
< CONNECTOR >			
* CN399	1-564-507-11	PLUG, CONNECTOR 4P	
CN999	1-564-506-11	PLUG, CONNECTOR 3P	
< DIODE >			
D394	8-719-987-63	DIODE 1N4148M	
< IC >			
IC498	8-759-981-96	IC RC4560D	
IC499	8-759-981-96	IC RC4560D	
IC598	8-759-981-96	IC RC4560D	
IC599	8-759-981-96	IC RC4560D	
< JACK >			
J399	1-750-785-11	CONNECTOR (XLR TYPE) 3P (ANALOG LINE OUT CH-1(L), CH-2(R))	
< TRANSISTOR >			
Q398	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q399	8-729-620-05	TRANSISTOR 2SC2603-EF	
< RESISTOR >			
R394	1-249-429-11	CARBON 10K 5% 1/4W	
R396	1-249-429-11	CARBON 10K 5% 1/4W	
R397	1-249-421-11	CARBON 2.2K 5% 1/4W	F
R398	1-249-425-11	CARBON 4.7K 5% 1/4W	F
R399	1-249-433-11	CARBON 22K 5% 1/4W	

REF.No.	Part No.	Description	Remark
R483	1-249-429-11	CARBON 10K 5% 1/4W	
R486	1-249-417-11	CARBON 1K 5% 1/4W	F
R487	1-249-417-11	CARBON 1K 5% 1/4W	F
R488	1-249-429-11	CARBON 10K 5% 1/4W	
R489	1-247-883-00	CARBON 150K 5% 1/4W	
R490	1-249-429-11	CARBON 10K 5% 1/4W	
R491	1-249-429-11	CARBON 10K 5% 1/4W	
R492	1-249-435-11	CARBON 33K 5% 1/4W	
R493	1-249-433-11	CARBON 22K 5% 1/4W	
R494	1-249-407-11	CARBON 150 5% 1/4W	F
R495	1-249-407-11	CARBON 150 5% 1/4W	F
R496	1-249-429-11	CARBON 10K 5% 1/4W	
R497	1-249-429-11	CARBON 10K 5% 1/4W	
R498	1-249-441-11	CARBON 100K 5% 1/4W	
R499	1-249-441-11	CARBON 100K 5% 1/4W	
R583	1-249-429-11	CARBON 10K 5% 1/4W	
R586	1-249-417-11	CARBON 1K 5% 1/4W	F
R587	1-249-417-11	CARBON 1K 5% 1/4W	F
R588	1-249-429-11	CARBON 10K 5% 1/4W	
R589	1-247-883-00	CARBON 150K 5% 1/4W	
R590	1-249-429-11	CARBON 10K 5% 1/4W	
R591	1-249-429-11	CARBON 10K 5% 1/4W	
R592	1-249-435-11	CARBON 33K 5% 1/4W	
R593	1-249-433-11	CARBON 22K 5% 1/4W	
R594	1-249-407-11	CARBON 150 5% 1/4W	F
R595	1-249-407-11	CARBON 150 5% 1/4W	F
R596	1-249-429-11	CARBON 10K 5% 1/4W	
R597	1-249-429-11	CARBON 10K 5% 1/4W	
R598	1-249-441-11	CARBON 100K 5% 1/4W	
R599	1-249-441-11	CARBON 100K 5% 1/4W	
< VARIABLE RESISTOR >			
RV499	1-223-877-11	RES, VAR, CARBON 10K (ANALOG LINE OUT LEVEL CH-1(L))	
RV599	1-223-877-11	RES, VAR, CARBON 10K (ANALOG LINE OUT LEVEL CH-2(R))	
< RELAY >			
RY499	1-755-061-11	RELAY	
RY599	1-755-061-11	RELAY	

MISCELLANEOUS			

3	1-696-760-11	WIRE (FLAT TYPE)(23 CORE)	
16	1-776-999-11	CORD (WITH CONNECTOR)	
62	1-751-712-11	WIRE (FLAT TYPE)(11 CORE)	
68	1-751-713-11	WIRE (FLAT TYPE)(21 CORE)	
113	1-452-824-11	MAGNET	

REF.No.	Part No.	Description	Remark
△ 151	8-848-367-11	OPTICAL PICK-UP KSS-213B/K-N	
152	1-769-069-11	WIRE (FLAT TYPE)(16 CORE)	
FL801	1-519-757-11	INDICATOR TUBE, FLUORESCENT	
△ *IL901	1-580-375-21	INLET 3P. (~ AC IN)	
J751	1-770-307-11	JACK (LARGE TYPE)(PHONES)	
M101	X-4917-523-3	MOTOR ASSY (SPINDLE)	
M102	X-4917-504-1	MOTOR ASSY (SLED)	
M151	A-4604-363-A	MOTOR (L) ASSY (LOADING)	
Q933	8-729-021-82	TRANSISTOR 2SD2396K	
RV701	1-225-217-11	RES, VAR, CARBON 10K/10K (PHONES LEVEL)	
S101	1-572-085-11	SWITCH, LEAF (LIMIT)	
S151	1-572-086-11	SWITCH, LEAF (LOAD OUT)	
S152	1-572-086-11	SWITCH, LEAF (LOAD IN)	
△ T901	1-429-487-11	TRANSFORMER, POWER (US,CND)	
△ T901	1-429-488-11	TRANSFORMER, POWER (AEP,UK)	

ACCESSORIES & PACKING MATERIALS

	1-473-546-11	REMOTE COMMANDER (RM-DL3)	
△	1-551-812-11	CORD, POWER (US,CND)	
△	1-590-910-11	CORD SET, POWER (AEP,UK)	
	1-590-925-31	CORD, CONNECTION (AUDIO 100cm)	
	2-297-913-00	WASHER (DIA.5), ORNAMENTAL	
	3-810-743-11	MANUAL, INSTRUCTION (ENGLISH, FRENCH, GERMAN)	
	4-941-762-11	COVER (MLY), BATTERY (for RM-DL3)	
*	4-941-925-02	CUSHION	
*	4-980-081-01	PLATE (RACK), ORNAMENTAL	
*	4-980-257-01	RACK (L/R)	
*	4-980-826-11	CARTON, INDIVIDUAL	
	7-682-276-04	SCREW +RK 5X12	
	7-685-646-79	SCREW +BVTP 3X8 TYPE2 IT-3	

REF.No.	Part No.	Description	Remark
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HARDWARE LIST

#1	7-682-548-09	SCREW +BVTT 3X8 (S)	
#2	7-685-646-79	SCREW +BVTP 3X8 TYPE2 IT-3	
#3	7-685-134-19	SCREW +BTP 2.6X8 TYPE2 N-S	
#4	7-621-255-15	SCREW +P 2X3	
#5	7-682-548-04	SCREW +BVTT 3X8 (S)	
#6	7-682-961-01	SCREW +PSW 4X8	

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.
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