D-NE509

SERVICE MANUAL

US Model
Canadian Model
E Model

Ver 1.0 2003. 07

US and foreign patents licensed from Dolby Laboratories.

Model Name Using Similar Mechanism	D-NE510
CD Mechanism Type	CDM-3325ER2
Optical Pick-up Name	DAX-25E

SPECIFICATIONS

System
Compact disc digital audio system

Laser diode properties
Material: GaAlAs
Wavelength: λ = 780 nm
Emission duration: Continuous
Laser output: Less than 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.)

D-A conversion
1-bit quartz time-axis control

Frequency response
20 – 20,000 Hz $^{+1}_{-2}$ dB
(measured by JEITA CP-307)

Output (at 4.5 V input level)
Headphones (stereo minijack)
Approx. 5 mW + Approx. 5 mW at 16 Ω
(Approx. 1.5 mW + Approx. 1.5 mW at 16 Ω)*
*For the customers in Europe

Power requirements
For the area code of the model you purchased, check the upper left side of the bar code on the package.
• Two LR6 (size AA) batteries: 1.5 V DC × 2
• AC power adaptor (DC IN 4.5 V jack):
US/CND/E92/MX model: 120 V, 60 Hz
E18 model: 100 – 240 V, 50/60 Hz

Battery life*1 (approx. hours)
(When you use the CD player on a flat and stable surface)
Playing time varies depending on how the CD player is used.

When using two Sony alkaline batteries LR6 (SG) (produced in Japan)

	G-PROTECTION function	
	"1"	"2"
Audio CD	48	45
ATRAC3plus files*2	77	77
MP3 files*3	72	72

*1 Measured value by the standard of JEITA (Japan Electronics and Information Technology Industries Association)
*2 When recorded at 48 kbps or 64 kbps
*3 When recorded at 128 kbps

Operating temperature
5°C – 35°C (41°F – 95°F)

Dimensions (w/h/d) (excluding projecting parts and controls)
Approx. 136 × 26 × 150 mm
(5 3/8 × 1 1/16 × 6 in.)

Mass (excluding accessories)
Approx. 220 g (7.8 oz.)

Supplied accessories
AC power adaptor (1) (EXCEPT US, CND)
Headphones/earphones (1)
CD-ROM (SonicStage Simple Burner) (1)
User's guide for SonicStage Simple Burner (1)

Design and specifications are subject to change without notice.

• Abbreviation
CND : Canadian model
E18 : AC 100 – 240V area in E model
E92 : AC 120V area in E model
MX : Mexican model

PORTABLE CD PLAYER

9-961-107-01
2003G04-1

Sony Corporation
Personal Audio Company
Published by Sony Engineering Corporation

SONY

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.

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.

Music sources playable on this CD player

You can play the following 3 music sources on this CD player:

- Audio CDs
- ATRAC3plus/ATRAC3 format files
- MP3 files

Usable disc formats

You can use ISO 9660 Level 1/2, Joliet extension format discs only.

ATRAC3plus and ATRAC3

"ATRAC3plus," which stands for "Adaptive Transform Acoustic Coding3plus" is audio compression technology, developed from the ATRAC3 format. Though the ATRAC3plus format can compress music content to about 1/20 of its original size, you can still enjoy high quality sound. The available transfer bit rates are 64 kbps and 48 kbps.

"ATRAC3," which stands for "Adaptive Transform Acoustic Coding3" is audio compression technology that satisfies the demand for high sound quality and high compression rates. The ATRAC3 format can compress music content to about 1/10 of their original size, which contributes to reduction of the media volume. The available transfer bit rates are 132 kbps, 105 kbps and 66 kbps.

The usable number of groups and files

- Maximum number of groups: 255
- Maximum number of files: 999

For details, refer to the supplied booklet "SonicStage Simple Burner."

MP3 files

MP3, which stands for MPEG-1 Audio Layer3, a standard for audio files compression supported by the Motion Picture Experts Group, an ISO (International Organization for Standardization) working group, enables compression of audio files to about 1/10 of the data size of a standard compact disc. Since the MP3 encoding algorithm is public, there are various encoders/decoders that are compliant with this standard, including freeware that is available for no charge. Thus, the MP3 standard is widely used in the computer field.

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.

SECTION 1
SERVICE NOTE

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

The laser diode in the optical pick-up block may suffer electrostatic breakdown because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body. During repair, pay attention to electrostatic breakdown and also use the procedure in the printed matter which is included in the repair parts.

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

Precautions for Checking Emission of Laser Diode

Laser light of the equipment is focused by the object lens in the optical pick-up so that the light focuses on the reflection surface of the disc. Therefore, be sure to keep your eyes more then 30 cm apart from the object lens when you check the emission of laser diode.

Before Replacing the Optical Pick-Up Block

Please be sure to check throughly the parameters as par the "Optical Pick-Up Block Checking Procedures" (Part No.: 9-960-027-11) issued separately before replacing the optical pick-up block. Note and specifications required to check are given below.

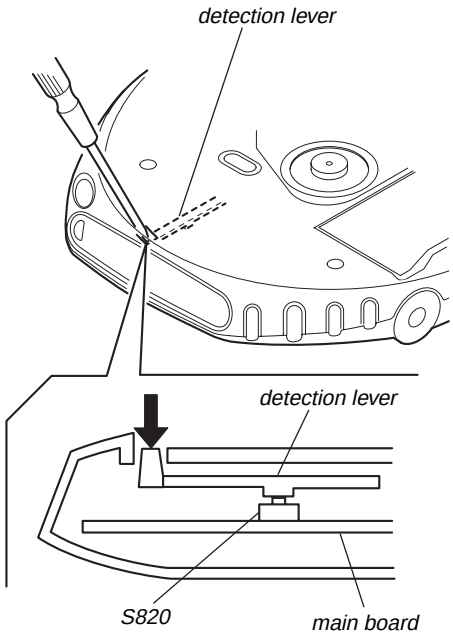
- FOK output : IC601 ⑮ pin (or TP618 (FOK))
  When checking FOK, remove the lead wire to disc motor.
- RF signal P-to-P value : 0.45 ± 0.1 Vp-p
- The repairing grating holder is impossible.

Laser Diode Checking Methods

During normal operation of the equipment, emission of the laser diode is prohibited unless the upper lid is closed while turning ON the S820. (push switch type)
The following two checking methods for the laser diode are operable.

• Method:
Emission of the laser diode is visually checked.

1. Open the upper lid.
2. With a disc not set, turn on the S820 with a screwdriver having a thin tip as shown in Fig.1.
   or TAP805 is shorted as shown in Fig.2.
   Note: Do not push the detection lever strongly, or it may be bent or damaged.
3. Press the ►II button.
4. Observing the objective lens, check that the laser diode emits light.
   When the laser diode does not emit light, automatic power control circuit or optical pick-up is faulty.
   In this operation, the objective lens will move up and down 5 times along with inward motion for the focus search.



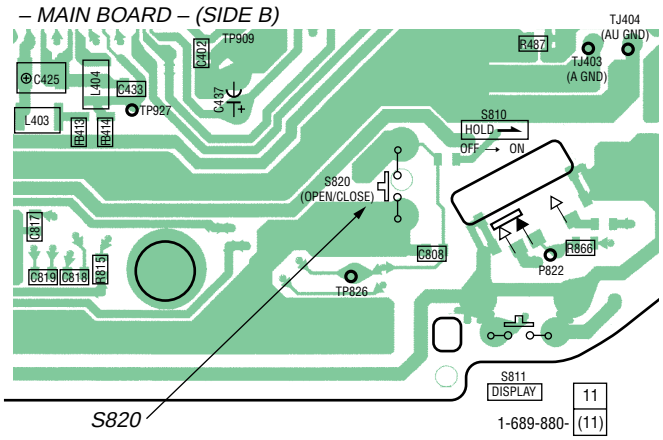


Fig. 1

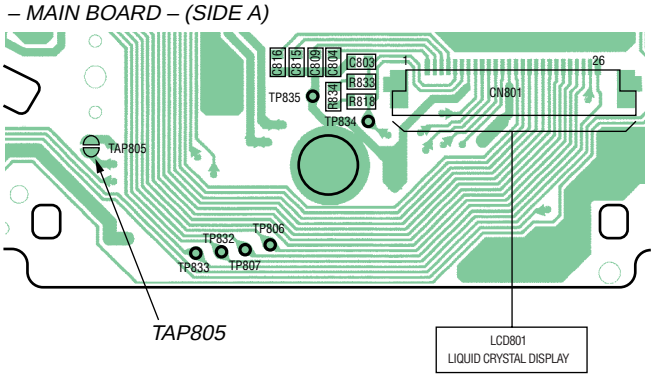


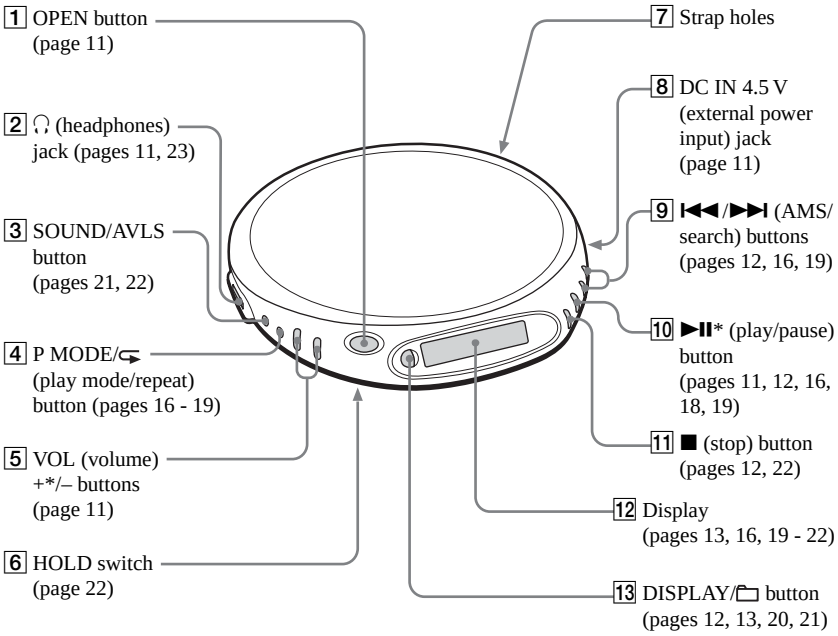
Fig. 2

Getting started

Locating the controls

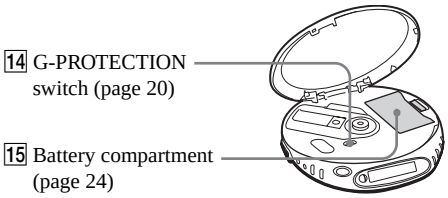
For details, see pages in parentheses.

CD player (front)



*The button has a tactile dot.

CD player (inside)



SECTION 3
DISASSEMBLY

• The equipment can be removed using the following procedure.

SET

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3-1. UPPER LID ASSY (Page 5)

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3-2. CABINET (UPPER) SUB ASSY (Page 6)

↓

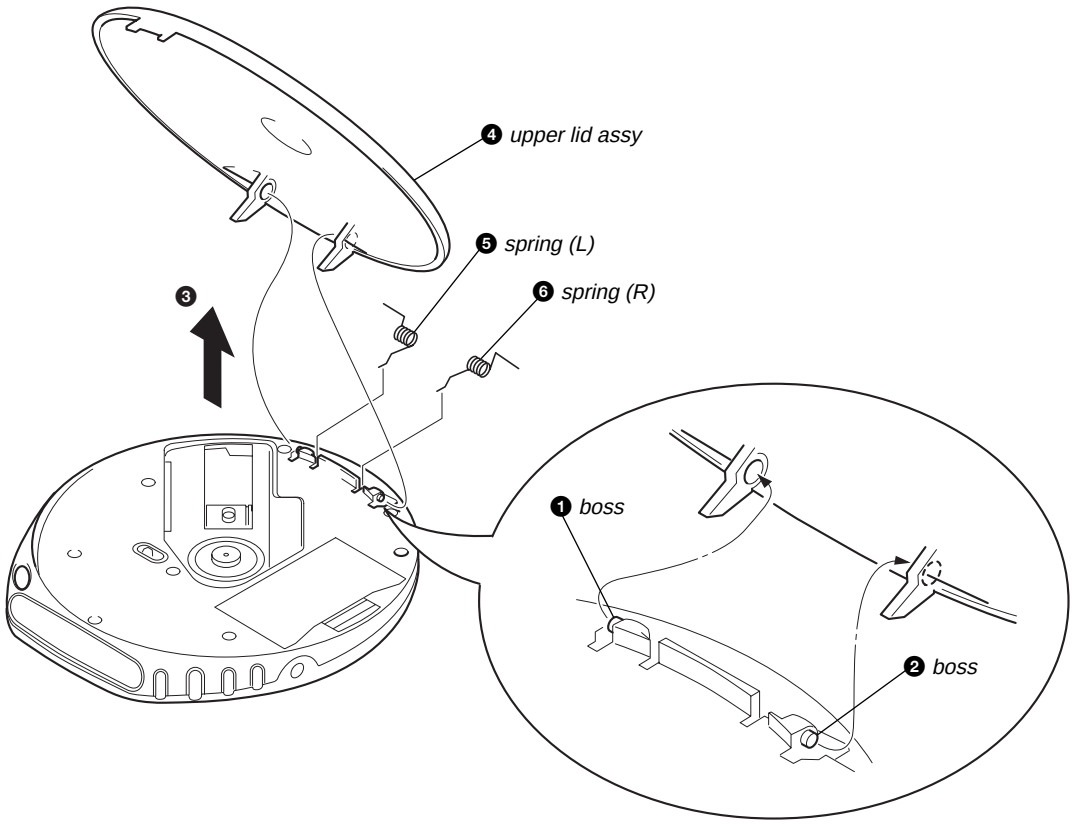
3-3. MD ASSY, MAIN BOARD (Page 6)

↓

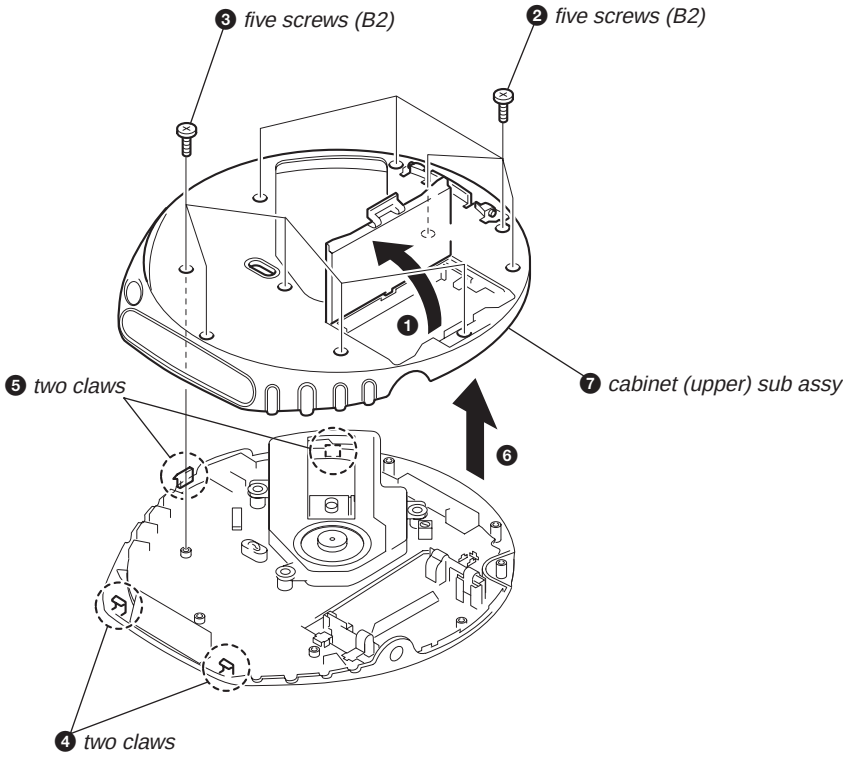
3-4. SLED MOTOR ASSY (M501), OPTICAL PICK-UP, TURNTABLE MOTOR ASSY (M502) (Page 7)

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

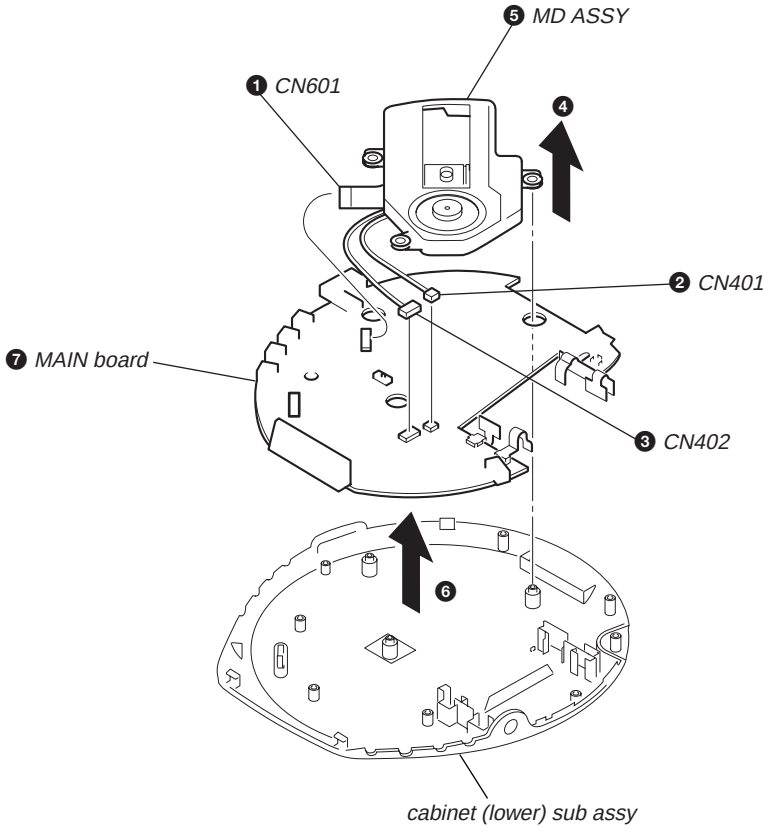
3-1. UPPER LID ASSY



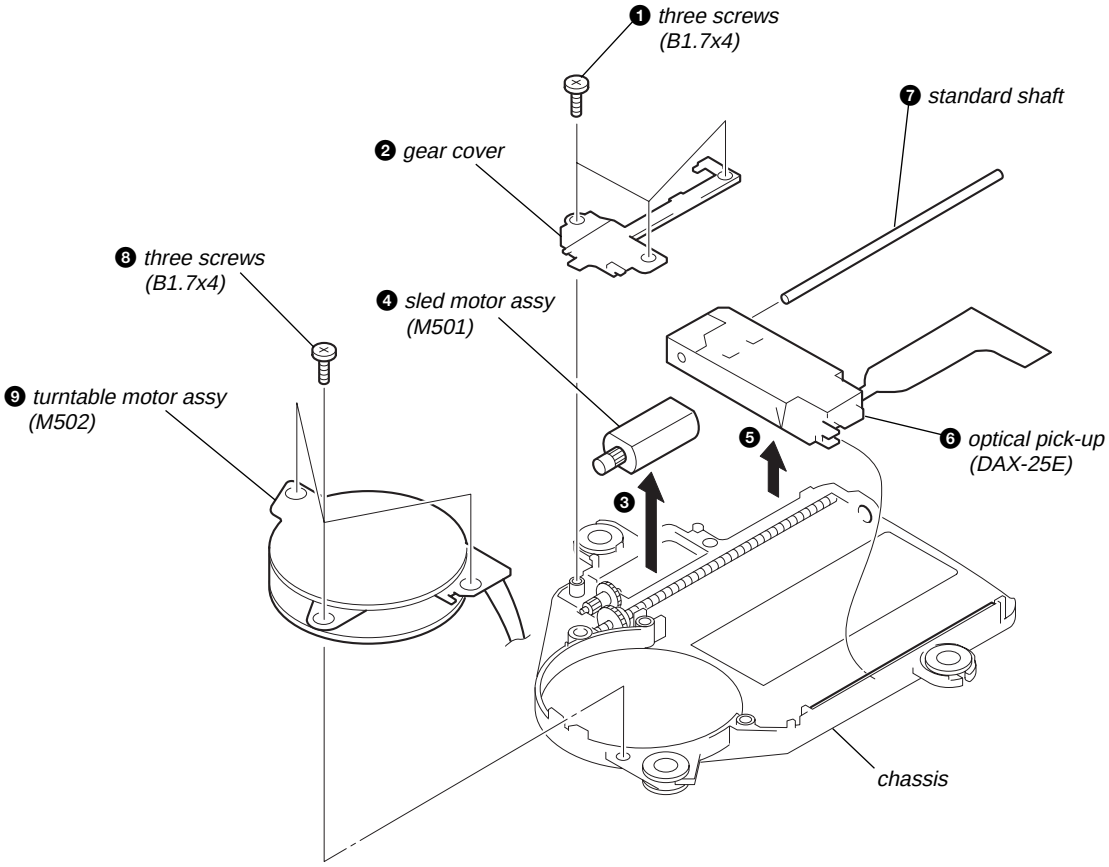
3-2. CABINET (UPPER) SUB ASSY



3-3. MD ASSY, MAIN BOARD



3-4. SLED MOTOR ASSY (M501), OPTICAL PICK-UP, TURNTABLE MOTOR ASSY (M502)



SECTION 4
ELECTRICAL ADJUSTMENTS

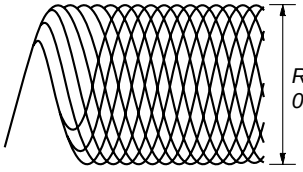
CD section adjustments are done automatically in this set.
In case of operation check, confirm that focus bias.

4-1. FOCUS BIAS CHECK

1. Connect the oscilloscope between TJ601 (RF) and GND on main board.
2. Insert the disc (YEDS-18). (Part No. : 3-702-101-01)
3. Press the ►II button.
4. Confirm that the oscilloscope waveform is as shown in the figure below. (eye pattern)
   A good eye pattern means that the diamond shape (◇) in the center of the waveform can be clearly distinguished.

• RF signal reference waveform (eye pattern)

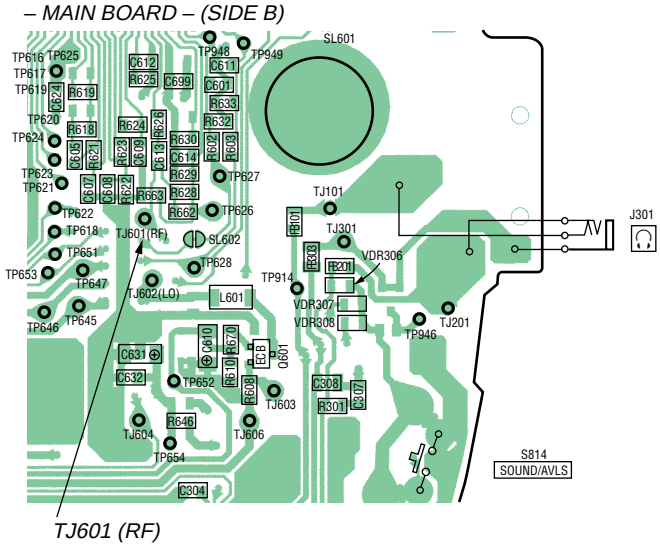
VOLT/DIV : 20 mV (10 : 1 probe in use)
TIME/DIV : 500 nS



When observing the eye pattern, set the oscilloscope for AC range and raise vertical sensitivity.

Test Points:

– MAIN BOARD – (SIDE B)



SECTION 5
DIAGRAMS

5-1. IC PIN DESCRIPTIONS

• IC601 CXD3048R (RF AMP, DIGITAL SIGNAL PROCESSOR, DIGITAL SERVO PROCESSOR, D-RAM CONTROLLER)

Pin No.	Pin Name	I/O	Pin Description
1	XRAS	O	Low address strobe signal output to the D-RAM
2	XWE	O	Data input enable signal output to the D-RAM
3 to 6	D1, D0, D3, D2	I/O	Two-way data bus with the D-RAM
7	DCLK	O	Not used (open)
8	DCKE	O	Not used (open)
9	XCAS	O	Column address strobe signal output to the D-RAM
10	WFCK/DQM	O	Not used (open)
11 to 13	A9 to A7	O	Address signal output to the D-RAM
14	DVSS	—	Ground
15 to 17	A6 to A4	O	Address signal output to the D-RAM
18	XRDE	I	D-RAM read enable signal input
19	VDD0	—	Power supply
20	CLOK	I	Serial data transfer clock signal input from TMP91CW28FG
21	SDTO	I	Serial data input from TMP91CW28FG
22	SENS	O	Serial data output to TMP91CW28FG
23	XLAT	I	Serial data latch pulse signal input from TMP91CW28FG
24	XSOE	I	Serial data output enable signal input from TMP91CW28FG
25	SYSM	I	Analog muting on/off control signal input from TMP91CW28FG “H”: muting on
26	WDCK	O	Not used (open)
27	SCOR	O	Subcode sync (S0+S1) detection signal output to TMP91CW28FG
28	XRST	I	Reset signal input from TMP91CW28FG “L”: reset
29	PWMI	I	Not used (fixed at “L”)
30	XQOK	I	Not used (fixed at “L”)
31	XWRE	I	Not used (fixed at “L”)
32	R8M	O	System clock output to TMP91CW28FG
33	VSS0	—	Ground
34	SQCK	I	SQSO readout clock signal input Not used (fixed at “H”)
35	SCLK	I	SENS serial data read clock signal input Not used (fixed at “H”)
36	SQSO	O	Not used (open)
37	XEMP	O	Not used (open)
38	XWIH	O	Not used (open)
39	SBSO	O	Not used (open)
40	EXCK	O	SQSO readout clock signal output Not used (pull down)
41	XTSL	I	Input terminal for the system clock frequency setting (pull down)
42	HVSS	—	Ground
43	HPL	O	Not used (open)
44	HPR	O	Not used (open)
45	HPVDD	—	Power supply
46	XVDD	—	Power supply
47	XTAI	I	System clock input (16.934 MHz)
48	XTAO	O	System clock output (16.934 MHz)
49	XVSS	—	Ground
50	AVDD1	—	Power supply
51	AOUT1	O	L-ch analog audio signal output
52	VREFL	O	L-ch reference voltage output
53, 54	AVSS1, AVSS2	—	Ground
55	VREFR	O	R-ch reference voltage output
56	AOUT2	O	R-ch analog audio signal output
57	AVDD2	—	Power supply

Pin No.	Pin Name	I/O	Pin Description
58	TES1	I	Input terminal for the test (fixed at “L”)
59	TEST	I	Input terminal for the test (fixed at “L”)
60	VSS1	—	Ground
61	LRMU	O	Muting on/off control signal output to TA2120FN
62	DOUT	O	Not used (open)
63	ATSK	I/O	Not used (open)
64	DFCT	I/O	Not used (open)
65	FOK	O	Focus OK signal output to TMP91CW28FG
66	MIRR	I/O	Not used (open)
67	COUT	I/O	Not used (open)
68	C2PO	O	Not used (open)
69	GFS	O	GFS signal output to TMP91CW28FG
70	XUGF	O	Not used (open)
71	XPCK	O	Not used (open)
72	VDD1	—	Power supply
73	PCO	O	Charge pump output for master PLL
74	FILI	I	Filter input for master PLL
75	FILO	O	Filter output for master PLL
76	CLTV	I	VCO1 control voltage input for multiplier
77	VCTL	I	VCO2 control voltage input for broad-band EFM PLL
78	VPCO	O	Charge pump output for broad-band EFM PLL
79	AVSS3	—	Ground
80	ASY_O	O	EFM full-swing output
81	ASY_I	I	Asymmetry comparator voltage input
82	BIAS	I	Asymmetry circuit constant current input
83	AVDD3	—	Power supply
84	RFAC	I	EFM signal input from the optical pick-up
85	AVDD0	—	Power supply
86	IGEN	I	Stabilized current input (pull up)
87	AVSS0	—	Ground
88	RFDC	I	RF signal input from the optical pick-up
89	E	I	E signal input from the optical pick-up
90	F	I	F signal input from the optical pick-up
91	B	I	B signal input from the optical pick-up
92	A	I	A signal input from the optical pick-up
93	VC	I	Middle point voltage input Not used (fixed at “L”)
94	VSS3	—	Ground
95	FRDR	O	Focus servo drive signal (–) output to the TB2138FG
96	FFDR	O	Focus servo drive signal (+) output to the TB2138FG
97	TRDR	O	Tracking servo drive signal (–) output to the TB2138FG
98	TFDR	O	Tracking servo drive signal (+) output to the TB2138FG
99	SRDR	O	Sled servo drive signal (–) output to the TB2138FG
100	SFDR	O	Sled servo drive signal (+) output to the TB2138FG
101	SSTP	I	Disc inner position detection signal input Not used (fixed at “L”)
102	MDS	O	Spindle motor drive signal output
103	MDP	O	Spindle motor servo control signal output
104	C176	O	176.4 kHz clock signal output to TB2138FG
105	VDD2	—	Power supply
106	LRCK_O	O	L/R sampling clock signal output to CXR710
107	LRCKI_I	I	L/R sampling clock signal input from CXR710
108	PCMD_O	O	Serial data output to CXR710

Pin No.	Pin Name	I/O	Pin Description
109	PCMD_I	I	Serial data input from CXR710
110	BCK_O	O	Bit clock signal output to CXR710
111	BCK_I	I	Bit clock signal input from CXR710
112	DVDD	—	Power supply
113 to 117	A3 to A0, A10	O	Address signal output to the D-RAM
118	A11	O	Not used (open)
119, 120	TEST3, TEST4	O	Not used (open)

• IC701 CXR710160-203R (SOUND PROCESSOR)

Pin No.	Pin Name	I/O	Pin Description
1	LRCH	I	D/A I/F L/R clock input from CXD3048
2	BCK	I	D/A I/F bit clock input from CXD3048
3	VDIOCD0	—	Power supply (+2.0 V)
4	PCMD	I	D/A I/F serial data input from CXD3048
5	DVDD4	—	Power supply (+1.5 V)
6	TAPTDO	O	Debug signal output
7	SCANEN	I	Not used (fixed at “L”)
8	DVDD0	—	Power supply (+1.5 V)
9	DVSS0	—	Ground
10	VDIO0	—	Power supply (+2.0 V)
11	VDIOCD1	—	Power supply (+2.0 V)
12	PF4	I	XRDE monitor signal input from CXD3048
13	PI3	O	D/A I/F bit clock output to CXD3048
14	PI2	O	D/A I/F L/R clock output to CXD3048
15	PI0	O	D/A I/F serial clock output to CXD3048
16	EVA	I	Mode select input terminal
17	KCLK	O	Not used (open)
18	KSC	O	Not used (open)
19	VDIO1	—	Power supply (+2.0 V)
20	KDI	O	Not used (open)
21	KDO	I	Not used (fixed at “L”)
22	KRB	I	Not used (fixed at “L”)
23	DVDD1	—	Power supply (+1.5 V)
24	DVSS3	—	Ground
25	AVDPLL	—	Power supply (PLL) (+2.6 V)
26	AVSPLL	—	Ground (PLL)
27	AVSOSC	—	Ground
28	AVDMO	—	Power supply (+2.6 V)
29	EXTAL	I	System clock input (22 MHz)
30	XTAL	O	System clock output (22 MHz)
31	XIN	I	System clock input (22 MHz)
32	OSSEL	I	Input terminal for clock frequency setting (fixed at “L”)
33	NRST	I	Reset signal input
34	PF0	I	Interrupt signal input to TMP91CW28FG
35	PF1	I	Not used (fixed at “L”)
36	PF2	O	Pull up to 2.0 V
37	PF3	O	REQ signal output to TMP91CW28FG
38	PC0	I	Clock signal input from TMP91CW28FG
39	VDIOCD2	—	Power supply (+2.0 V)
40	PC1	O	Serial data output to TMP91CW28FG
41	PC2	I	Serial data input from TMP91CW28FG
42	PC3	I	Data latch signal input from TMP91CW28FG
43	DVDD2	—	Power supply (+1.5 V)
44	DVSS2	—	Ground
45	PE0	—	Not used (open)
46	PE1	—	Not used (open)
47	PE2	—	Not used (fixed at “L”)
48	PE3	—	Not used (open)
49	VDIO2	—	Power supply (+2.0 V)
50	TACK (TEST6)	O	Not used (open)
51	XOUT (TEST5)	O	Not used (open)
52	TRST (TEST4)	I	Not used (fixed at “L”)

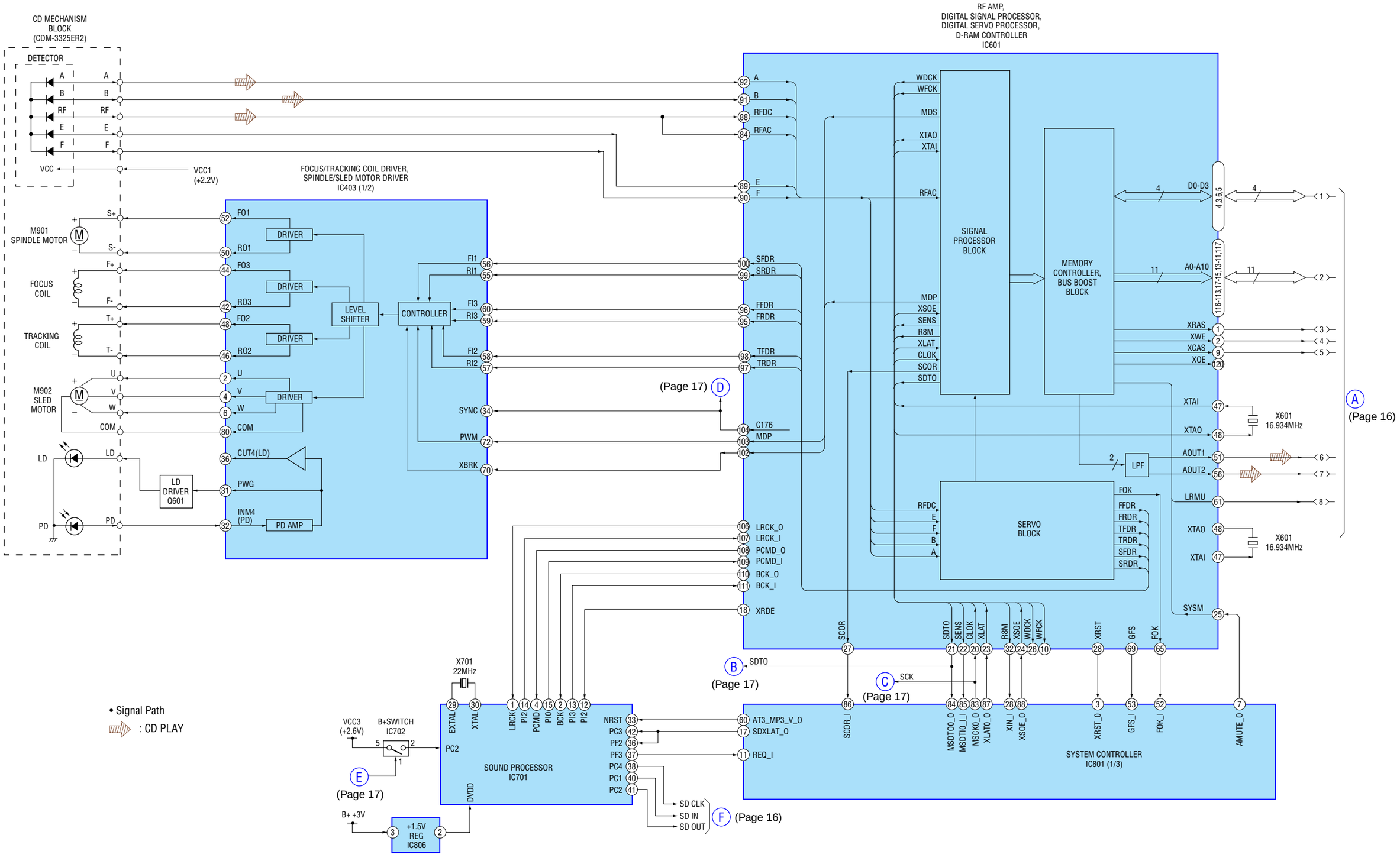
Pin No.	Pin Name	I/O	Pin Description
53	TEST3	I	Not used (fixed at “L”)
54	TEST2	I	Not used (fixed at “L”)
55	TEST1	I	Not used (fixed at “L”)
56	DVDD3	—	Power supply
57	DVSS1	—	Ground
58	TEST0	I	Not used (pull down)
59	TCK	I	Not used (open)
60	TDI	I	Not used (open)
61	VDIO3	—	Power supply (+2.0 V)
62	TMS	I	Not used (open)
63	TDO	O	Not used (open)
64	NTRST	I	Not used (fixed at “L”)

• IC801 TMP91CW28FG (SYSTEM CONTROL)

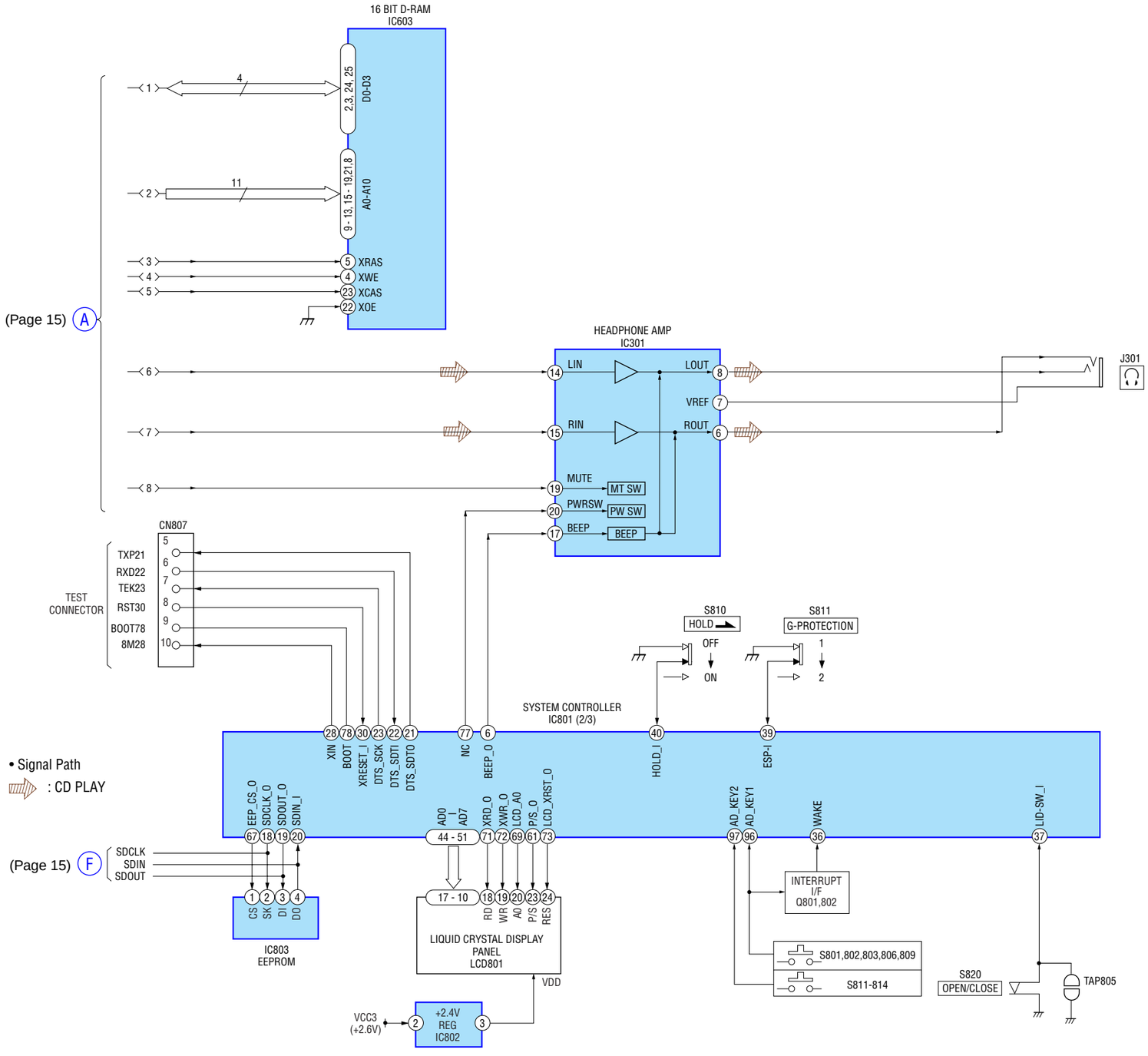
Pin No.	Pin Name	I/O	Pin Description
1	GND	—	Ground
2	GND	—	Ground
3	VCPU	—	Power supply (+2.0 V)
4	XRST_O	O	System reset signal output
5	PWM_O	O	Not used (open)
6	BEEP_O	O	Beep signal output
7	AMUTE_O	O	Mute signal output to CXD3048
8	LINEOUT_I	I	Not used (open)
9	OPTOUT_I	I	Not used (open)
10	FG_I	I	Motor flag monitor input from TB2138FG
11	REQ_I	I	REQ signal input from CXA710
12	HG-XSTB_O	O	Strobe signal output to optical pick up block
13	HG-GUP_O	O	Guide-up signal output to optical pick up block
14	RE1_I	I	Not used (open)
15	RE2_I	I	Not used (open)
16	LCD_REQ_O	O	Not used (open)
17	SDXLAT_O	O	Data latch signal output to CXD3048
18	SDCLK_O	O	Serial clock output to EEPROM
19	SDOUT_O	O	Serial data output to EEPROM
20	SDIN_I	I	Serial data input from EEPROM
21	DTS_SDTO	O	Serial data output
22	DTS_SDTI	I	Serial data input
23	DTS_SCK	O	Serial data transfer clock output
24	AMO_I	I	Not used (connect to 2.0 V)
25	VCPU	—	Power supply (+2.0 V)
26	XOUT	O	Not used (open)
27	GND	—	Ground
28	XIN	I	System clock signal input
29	AM1_I	I	Not used (fixed at “H”)
30	XRESET_I	I	System reset signal input from TB2138FG
31	TSB	I	Not used (open)
32	XWAKE_O	O	WAKE-UP signal output to TB2138FG
33	EMU0_O	O	Not used (open)
34	EMU1_O	O	Not used (open)
35	ACKCD_I	I	Not used (pull down)
36	WAKE	I	KEY interrupt signal input
37	LID-SW_I	I	CD lid switch signal input
38	EXTBAT_I	I	Not used (fixed at “L”)
39	ESP_I	I	G-protection switch signal input
40	HOLD_I	I	HOLD switch signal input
41	AVSL_I	I	Not used (fixed at “L”)
42	TEST_I	I	Test mode setting input
43	NC	—	Not used (open)
44 to 51	AD0 to 7	I/O	Address and data input/output to LCD unit
52	FOK_I	I	Focus OK signal input from CXD3039R
53	GFS_I	I	GFS signal input from CXD3039R
54	TUPWRON_O	O	Not used (open)
55	CDON_O	O	Not used (open)
56	AUD_SEL	O	Not used (open)
57	CHGGND_ON_O	O	Not used (pull down)
58	BATT_VCC_ON_O	O	Not used (open)
59	DTS_RST_O	O	Not used (open)

Pin No.	Pin Name	I/O	Pin Description
60	AT3_MP3_V_O	O	IC701 reset
61	P/S_O	O	Not used (open)
62	GND	—	Ground
63	XNMI_I	I	Not used (fixed at “H”)
64	VCPU	—	Power supply (+2.0 V)
65	HP_LIN_SEL_I	I	HP/LINE select input (fixed at “H”)
66	WAKEUP_K_O	O	Interrupt signal output to CXR710
67	EEP_CS_O	O	Chip select signal output to EEPROM
68	TUON_I	I	Not used (pull up)
69	LCD_A0	O	A0 signal output to LCD
70	OPTWRCTL_O	O	Not used (open)
71	XRD_O	O	Read signal output to LCD unit
72	XWR_O	O	Write signal output to LCD unit
73	LCD-XRST_O	O	Reset signal output to LCD unit
74	XLCD-BL_O	O	Not used (open)
75	DISPLAY_TYPE	I	DISPLAY type setting input (fixed at “L”) (pull down)
76	TUNER_TYPE	I	TUNER type setting input (fixed at “L”) (pull down)
77	NC	—	H/P power switch control
78	BOOT	—	Not used (pull up)
79	DRAM0_I	I	4M/16M select input to DRAM (fixed at “L”)
80	DRAM1_I	I	Not used (fixed at “L”)
81	XCEX_I	I	Not used (open)
82	XLED-DSP_O	O	Not used (open)
83	MSCK0_O	O	Serial data transfer clock output to CXD3048 and TB2138FG
84	MSDTO0_O	O	Serial data output to CXD3048 and TB2138FG
85	MSDTIO_I	I	SENS signal input from CXD3048
86	SCOR_I	I	Sub-code sync (S0+S1) detect signal input from CXD3048
87	XLAT0_O	O	Latch signal output to CXD3048
88	XSOE_O	O	Serial data enable signal output to CXD3048
89	VCPU	—	Power supply (+2.0 V)
90	PWRLAT_O	O	Data Latch signal output to TB2138FG
91	GND	—	Ground
92	AD-BATMNT	I	Battery voltage level monitor input
93	AD-CHGMNT	I	Not used (pull up)
94	AD-CHGSTMNT	I	Not used (fixed at “L”)
95	AD-DCINMNT	I	DC IN voltage level monitor input
96	AD-KEY1	I	Key input from switch unit
97	AD-KEY2	I	Key input from switch unit
98	AD-KEY3	I	Not used (pull up)
99	AD-RMKEY	I	Not used (fixed at “L”)
100	VCPU	—	Power supply (+2.0 V)

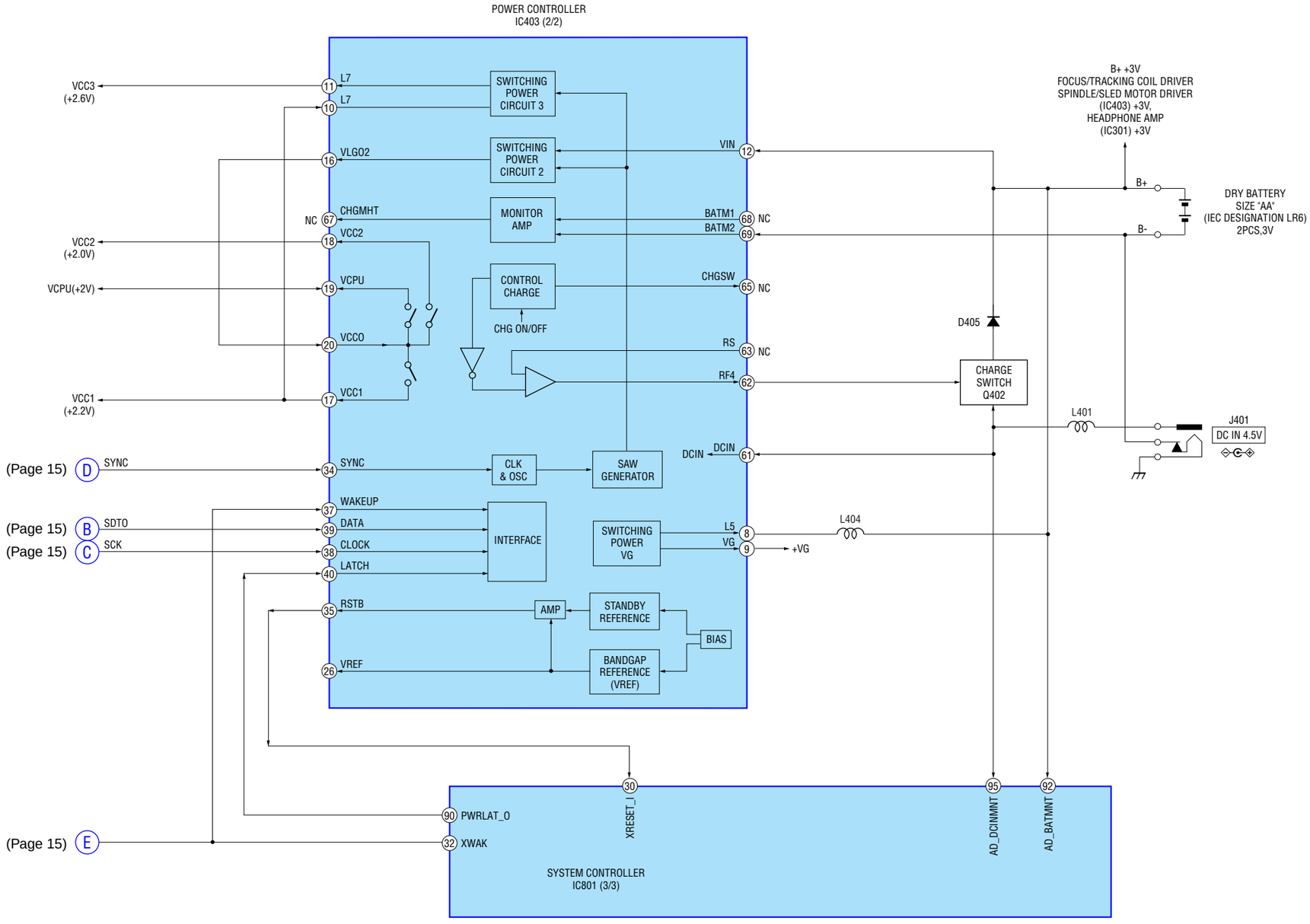
5-2. BLOCK DIAGRAM — CD SECTION —



5-3. BLOCK DIAGRAM — AUDIO SECTION —



5-4. BLOCK DIAGRAM — POWER SUPPLY SECTION —



Common Note on Schematic Diagram:

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

Note:	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.

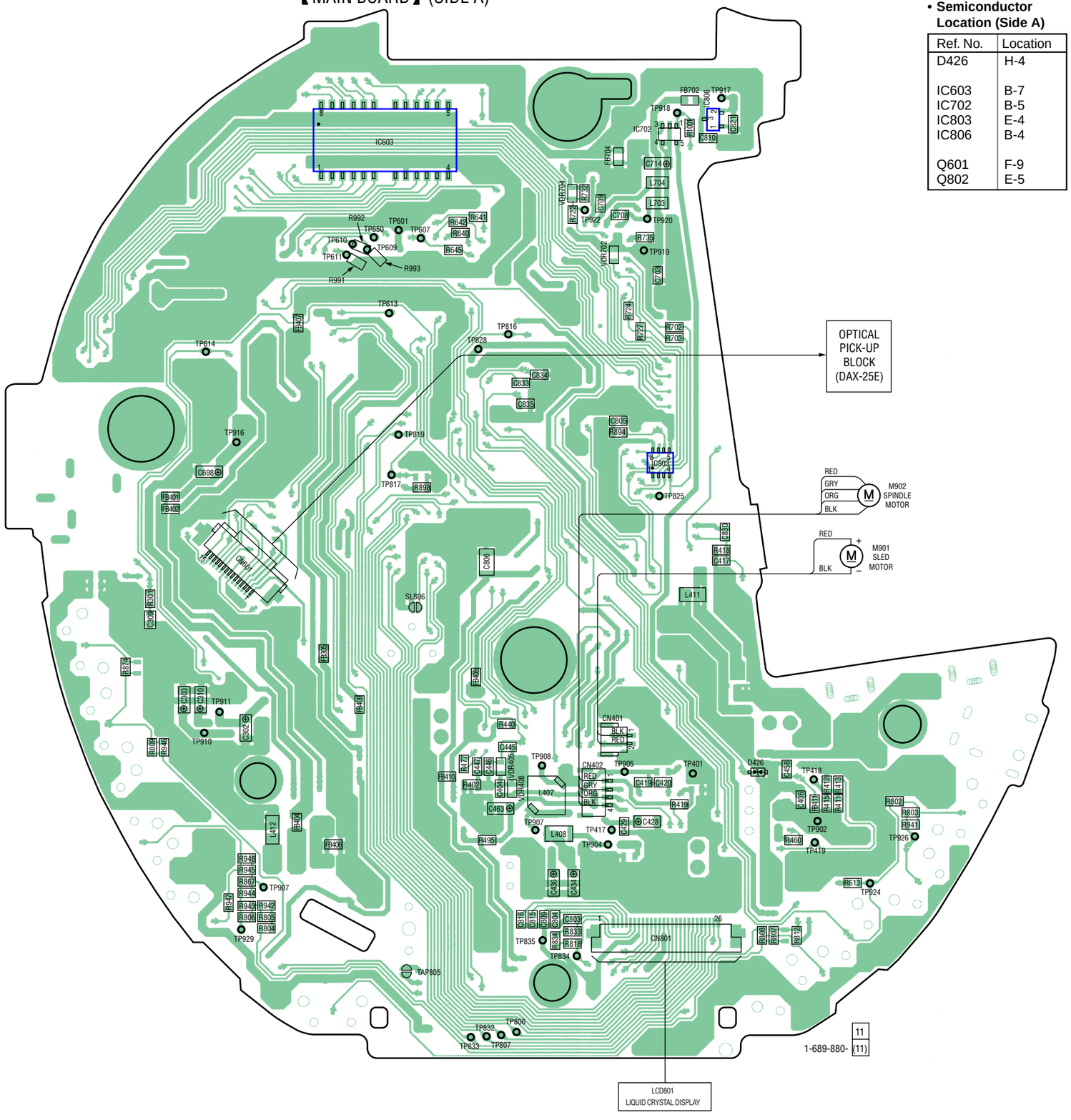
- ━━ : B+ Line.
- Total current is measured with CD installed.
- Power voltage is dc 4.5 V and fed with regulated dc power supply from external power voltage jack.
- Voltages and waveforms are dc with respect to ground in playback mode.
  no mark : CD PLAY
  * : Impossible to measure
- Voltages are taken with a VOM (Input impedance 10 MΩ). 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.
  ⇨ : CD

Common Note on Printed Wiring Boards:

- o—— : parts extracted from the component side.
- —— : parts extracted from the conductor side.
- ○ : Through hole.
- △ : internal component.
- 🟩 : Pattern from the side which enables seeing.

Caution:	
Pattern face side: (Side B)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Side A)	Parts on the parts face side seen from the parts face are indicated.

5-5. PRINTED WIRING BOARD — MAIN SECTION —

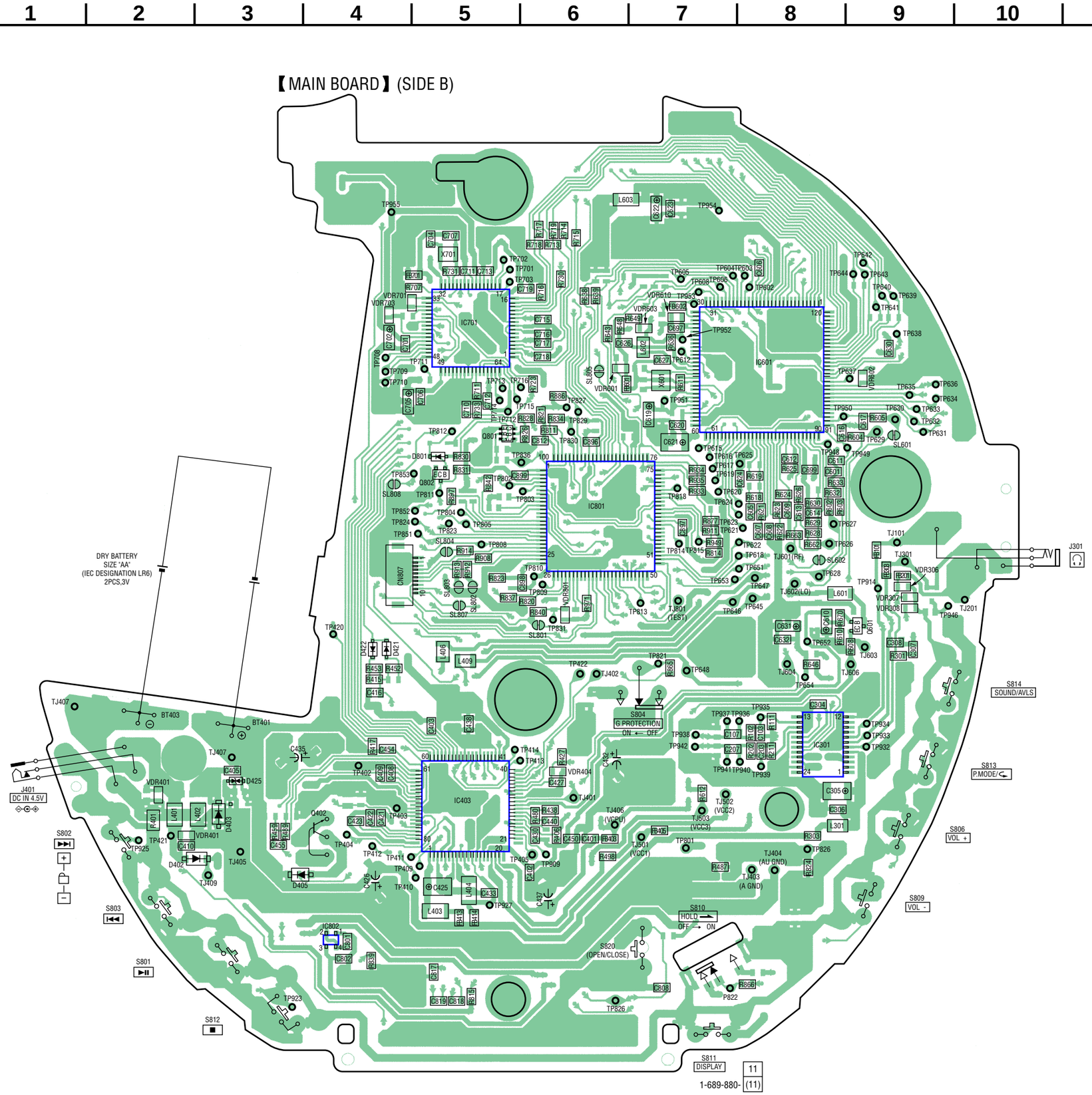


• **Semiconductor Location (Side A)**

Ref. No.	Location
D426	H-4
IC603	B-7
IC702	B-5
IC803	E-4
IC806	B-4
Q601	F-9
Q802	E-5

• Refer to page 18 for Common note on Printed Wiring Board.

【MAIN BOARD】(SIDE B)

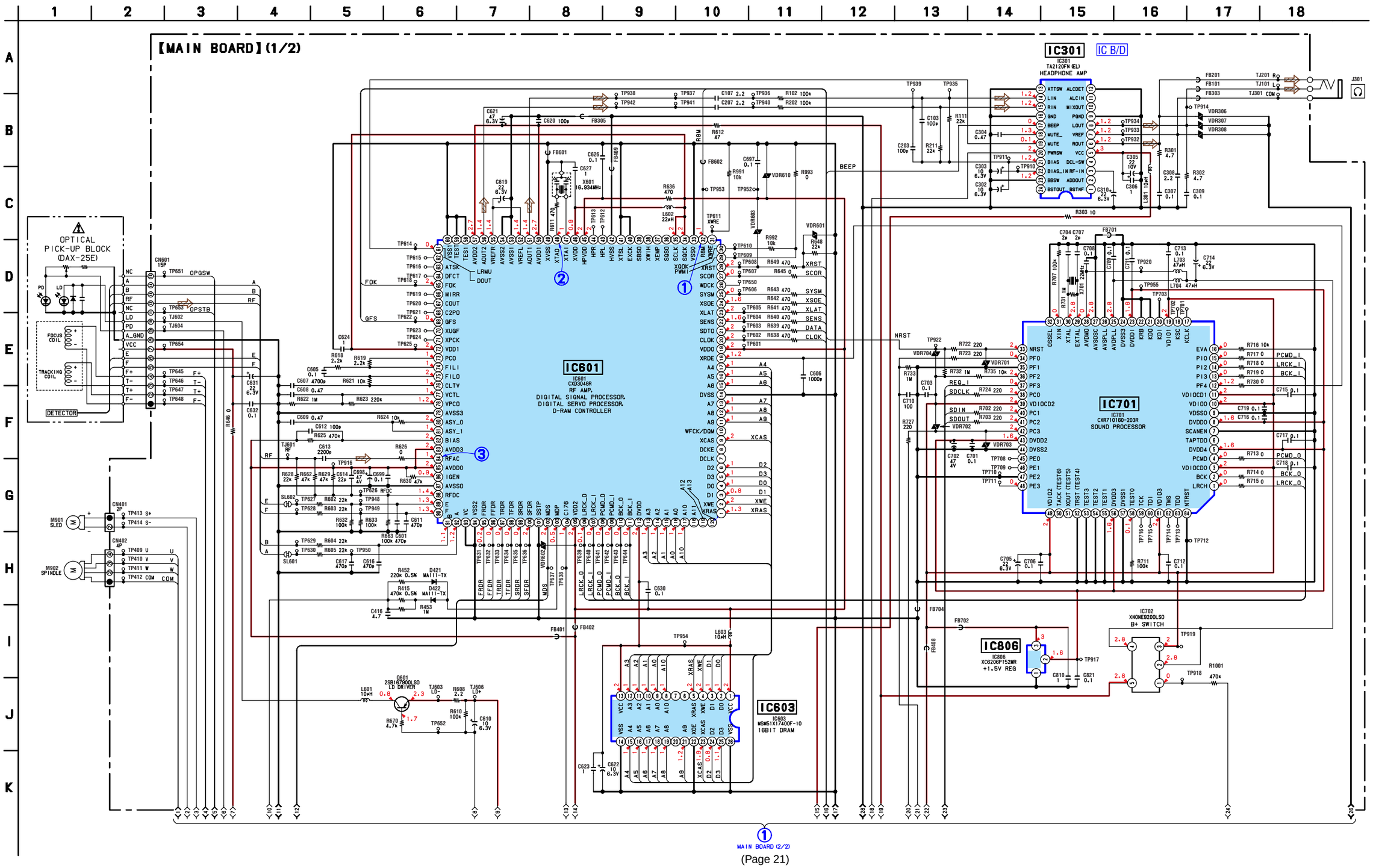


• **Semiconductor Location (Side B)**

Ref. No.	Location
D402	H-2
D403	H-3
D405	H-3
D421	F-4
D422	F-4
D425	G-3
D801	D-5
IC301	G-8
IC403	H-5
IC601	D-8
IC701	C-5
IC801	E-6
IC802	I-4
Q402	H-4
Q801	D-5

5-6. SCHEMATIC DIAGRAM — MAIN SECTION (1/2) —

• Refer to page 22 for IC Block Diagram.
• Refer to page 18 for Common Note on Schematic Diagram.

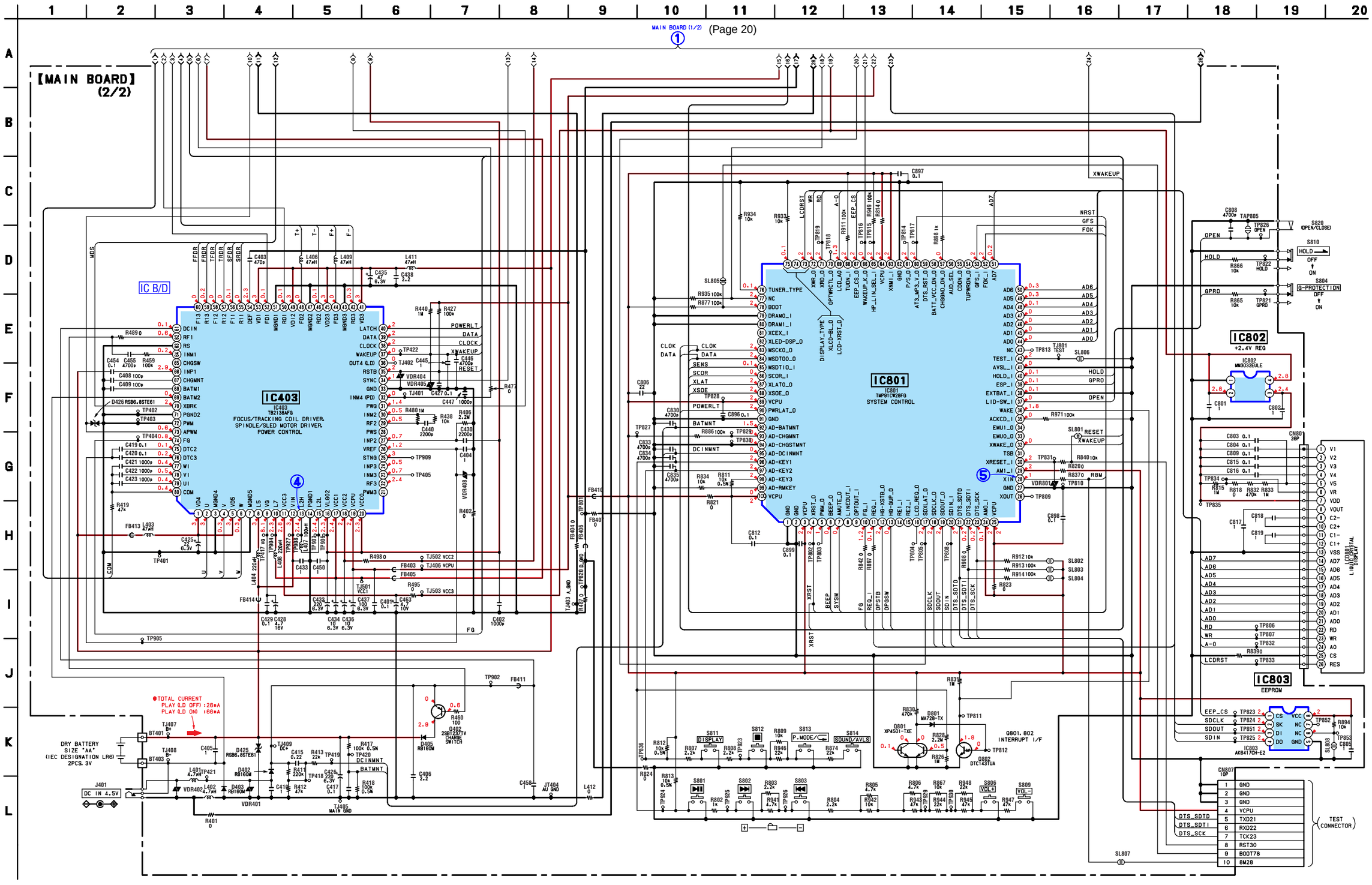


• **Waveforms (CD play mode)**

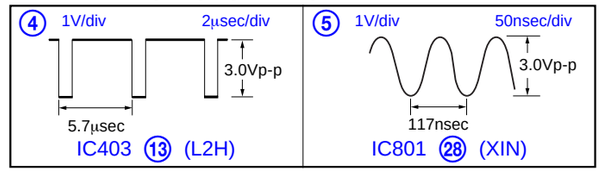
① 1V/div, 50nsec/div, 2.0Vp-p, 117nsec — IC601 (32) (R8M)	② 1V/div, 20nsec/div, 3.0Vp-p, 16.934MHz — IC601 (48) (XTAO)	③ 200mV/div, 500nsec/div, 0.6Vp-p — IC601 (84) (RFAC)

5-7. SCHEMATIC DIAGRAM — MAIN SECTION (2/2) —

• Refer to page 22 for IC Block Diagram.
• Refer to page 18 for Common Note on Schematic Diagram.

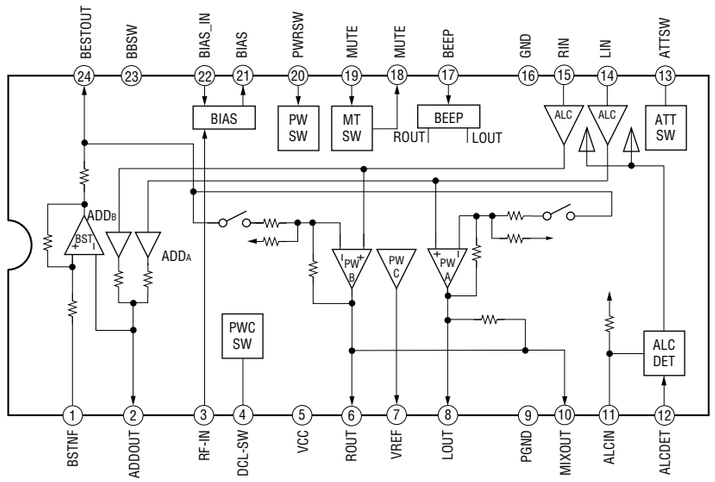


• **Waveforms (CD play mode)**

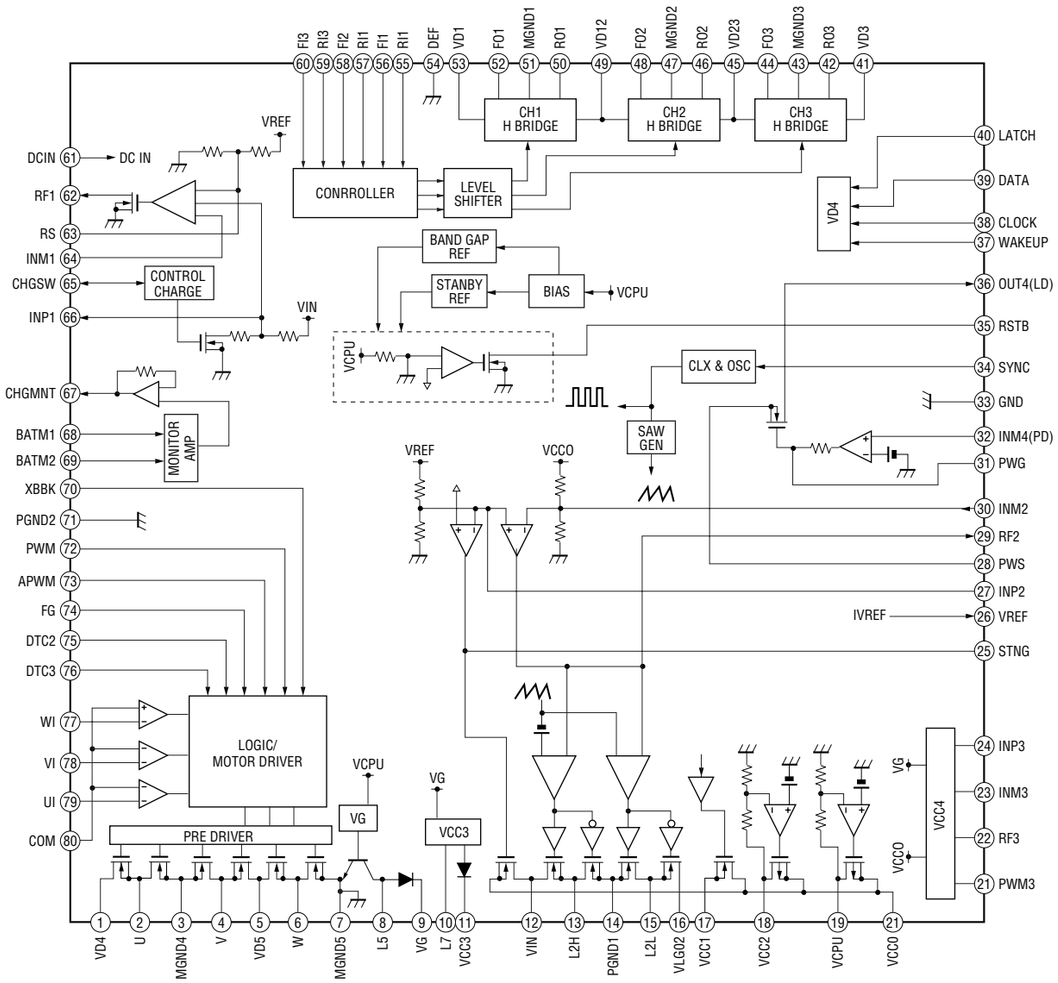


5-8. IC BLOCK DIAGRAMS

IC301 TA2120FN



IC403 TB2138AFG



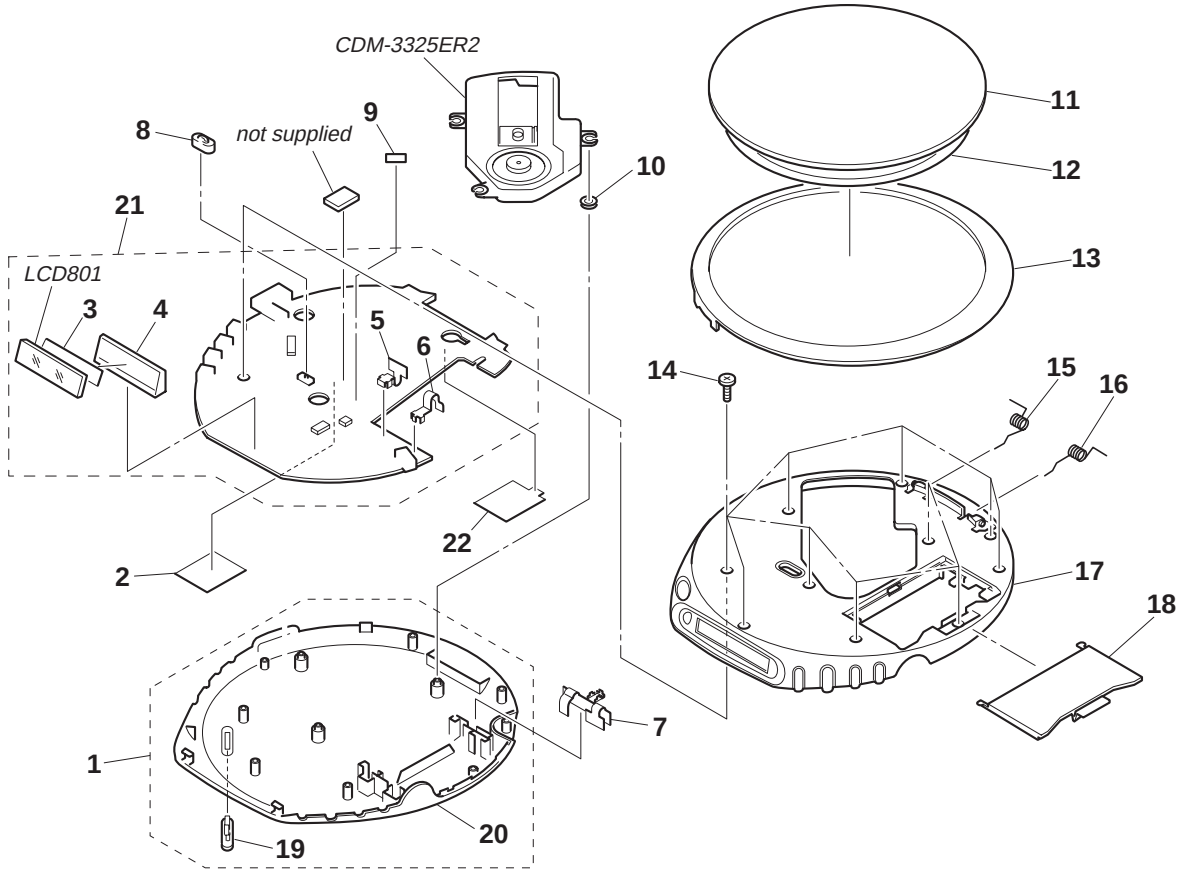
SECTION 6
EXPLODED VIEWS

NOTE:
- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Color Indication of Appearance Parts
  Example :
  KNOB, BALANCE (WHITE) ... (RED)
  ↑ ↑
  Parts Color Cabinet's Color
- Accessories are given in the last of this parts list.

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

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

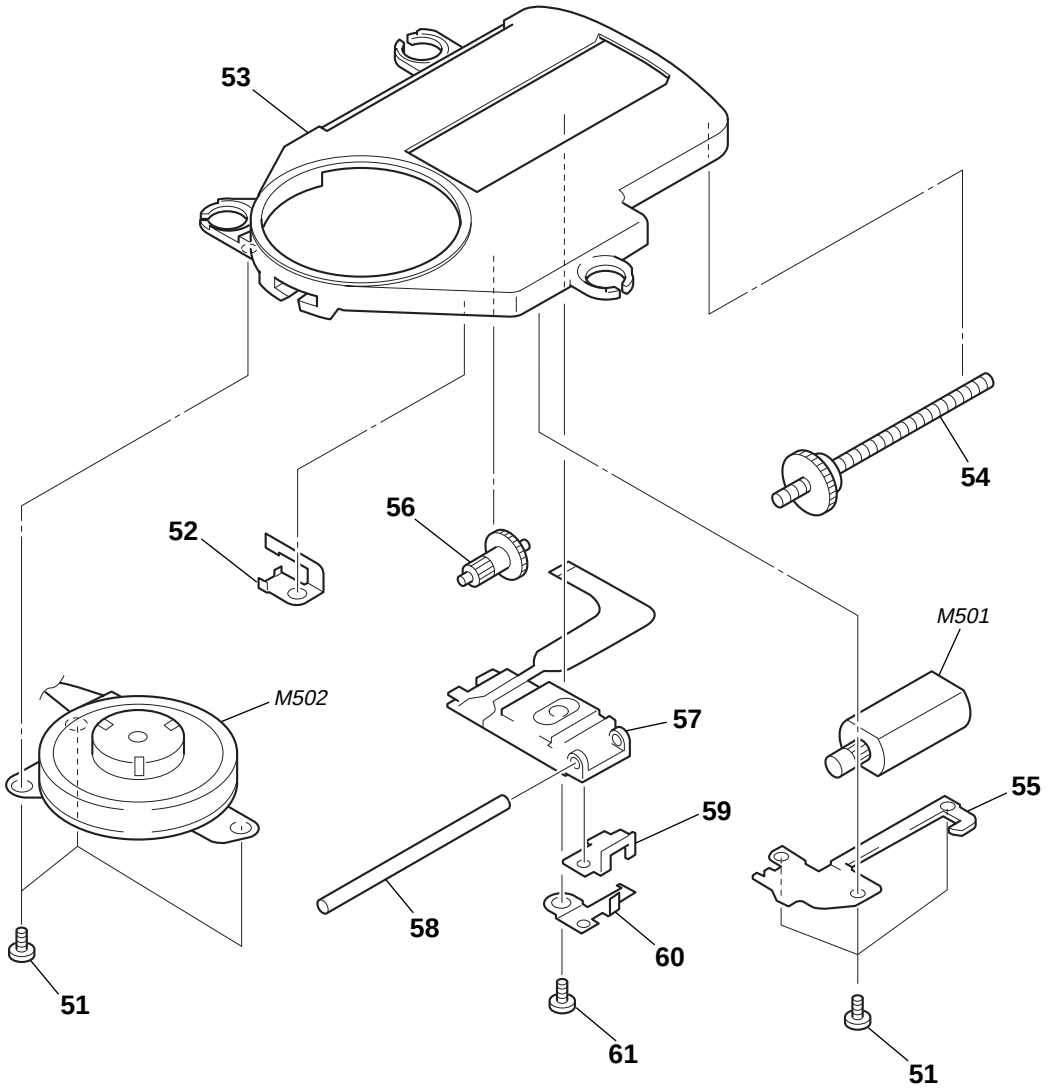
6-1. CABINET SECTION



Ref. No.	Part No.	Description	Remark
1	X-3383-971-1	CABINET (LOWER) SUB ASSY	
2	3-257-904-01	SHEET, SHIELD	
3	3-258-004-01	SHEET (LCD), ADHESIVE	
4	3-257-996-01	HOLDER (LCD)	
5	3-249-875-01	BOARD (+), TERMINAL, BATTERY	
6	3-249-876-01	BOARD (–), TERMINAL, BATTERY	
7	3-245-557-01	TERMINAL, BATTERY LINK	
8	3-258-006-01	KNOB (GPRO)	
9	3-831-441-99	SPACER, KNOB	
10	3-245-331-02	INSULATOR	
11	3-257-997-01	WINDOW (UPPER LID)	
12	3-257-999-01	SHEET (WINDOW), ADHESIVE	

Ref. No.	Part No.	Description	Remark
13	3-258-000-01	LID, UPPER	
14	4-908-792-61	SCREW (B2)	
15	3-257-902-01	SPRING (L)	
16	3-257-903-01	SPRING (R)	
17	X-3383-968-1	CABINET (UPPER) SUB ASSY	
18	3-245-861-01	LID, BATTERY	
19	3-258-007-01	KNOB (HOLD)	
20	3-258-015-01	CABINET (LOWER)	
21	A-4541-309-B	MAIN BOARD, COMPLETE	
22	3-258-684-01	SHEET, ELECTROSTATIC	
LCD801	1-805-379-11	DISPLAY PANEL, LIQUID CRYSTAL	

6-2. CD MECHANISM SECTION (CDM-3325ER2)



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	3-318-203-61	SCREW (B1.7X4), TAPPING	
52	3-221-474-01	SPRING, SLED	
53	3-221-472-02	CHASSIS	
54	A-3331-663-A	SCREW (FEED) ASSY	
55	3-221-473-01	COVER, GEAR	
56	3-221-268-01	GEAR (B)	
⚠57	X-3380-950-1	DAX-25E RP ASSY	
58	3-221-475-01	SHAFT, STANDARD	
59	3-222-298-01	RACK	
60	3-222-299-01	SPRING, RACK RETAINER	
61	3-348-998-31	SCREW (M1.4X2.5), TAPPING, PAN	
M501	A-3174-850-A	MOTOR ASSY, SLED (SLED)	
M502	A-3608-777-A	MOTOR ASSY, TURNTABLE (SPINDLE)	

SECTION 7
ELECTRICAL PARTS LIST

MAIN

NOTE:
- 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.
- RESISTORS
  All resistors are in ohms.
  METAL:Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F:nonflammable
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u : µ, for example:
  uA.. : µA.. uPA.. : µPA..
  uPB.. : µPB.. uPC.. : µPC.. uPD.. : µPD..
- CAPACITORS
  uF : µF
- COILS
  uH : µH
- Abbreviation
  CND : Canadian model
  E18 : AC 100 – 240V area in E model
  E92 : AC 120V area in E model
  MX : Mexican model

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.

Ref. No.	Part No.	Description			Remark
	A-4541-309-B	MAIN BOARD, COMPLETE			
		**********			
	3-249-875-01	BOARD (+), TERMINAL, BATTERY			
	3-249-876-01	BOARD (–), TERMINAL, BATTERY			
	3-257-996-01	HOLDER (LCD)			
	3-258-004-01	SHEET (LCD), ADHESIVE			
		< CAPACITOR >			
C103	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C107	1-125-838-11	CERAMIC CHIP	2.2uF	10%	6.3V
C203	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C207	1-125-838-11	CERAMIC CHIP	2.2uF	10%	6.3V
C302	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C303	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C304	1-117-863-11	CERAMIC CHIP	0.47uF	10%	6.3V
C305	1-104-852-11	TANTAL. CHIP	22uF	20%	10V
C306	1-125-837-11	CERAMIC CHIP	1uF	10%	6.3V
C307	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C308	1-125-838-11	CERAMIC CHIP	2.2uF	10%	6.3V
C309	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C310	1-119-750-11	TANTAL. CHIP	22uF	20%	6.3V
C401	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C402	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C403	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C404	1-125-837-11	CERAMIC CHIP	1uF	10%	6.3V
C405	1-115-156-11	CERAMIC CHIP	1uF		10V
C406	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C408	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C409	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C410	1-115-156-11	CERAMIC CHIP	1uF		10V
C415	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V
C416	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C417	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C419	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C420	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C421	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C422	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C423	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C425	1-104-852-11	TANTAL. CHIP	22uF	20%	6.3V
C426	1-126-369-11	ELECT	220uF	20%	6.3V
C427	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C428	1-107-686-11	TANTAL. CHIP	4.7uF	20%	16V
C429	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C430	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V

Ref. No.	Part No.	Description			Remark
C432	1-124-635-00	ELECT	220uF	20%	6.3V
C433	1-115-156-11	CERAMIC CHIP	1uF		10V
C434	1-165-851-11	TANTAL. CHIP	10uF	20%	6.3V
C435	1-124-589-11	ELECT	47uF	20%	6.3V
C436	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C437	1-124-584-00	ELECT	100uF	20%	6.3V
C438	1-125-838-11	CERAMIC CHIP	2.2uF	10%	6.3V
C440	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C445	1-125-837-11	CERAMIC CHIP	1uF	10%	6.3V
C446	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C447	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C450	1-115-156-11	CERAMIC CHIP	1uF		10V
C454	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C455	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C458	1-127-573-11	CERAMIC CHIP	1uF	10%	16V
C463	1-135-210-11	TANTAL. CHIP	4.7uF	20%	10V
C601	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C605	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C606	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C607	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C608	1-117-863-11	CERAMIC CHIP	0.47uF	10%	6.3V
C609	1-117-863-11	CERAMIC CHIP	0.47uF	10%	6.3V
C610	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C611	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C612	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C613	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C614	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C616	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C617	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C619	1-119-750-11	TANTAL. CHIP	22uF	20%	6.3V
C620	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C621	1-110-569-11	TANTAL. CHIP	47uF	20%	6.3V
C622	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C623	1-125-837-11	CERAMIC CHIP	1uF	10%	6.3V
C624	1-115-156-11	CERAMIC CHIP	1uF		10V
C626	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C627	1-115-156-11	CERAMIC CHIP	1uF		10V
C630	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C631	1-119-750-11	TANTAL. CHIP	22uF	20%	6.3V
C632	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C697	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C698	1-131-862-11	TANTAL. CHIP	47uF	20%	4V
C699	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C701	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C702	1-131-862-11	TANTAL. CHIP	47uF	20%	4V

MAIN

Ref. No.	Part No.	Description			Remark
C703	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C704	1-162-907-11	CERAMIC CHIP	2PF	0.25PF	50V
C705	1-119-750-11	TANTAL. CHIP	22uF	20%	6.3V
C706	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C707	1-162-907-11	CERAMIC CHIP	2PF	0.25PF	50V
C708	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C709	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C710	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C711	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C712	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C713	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C714	1-119-750-11	TANTAL. CHIP	22uF	20%	6.3V
C715	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C716	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C717	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C718	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C719	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C801	1-125-837-11	CERAMIC CHIP	1uF	10%	6.3V
C802	1-125-837-11	CERAMIC CHIP	1uF	10%	6.3V
C803	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C804	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C805	1-115-156-11	CERAMIC CHIP	1uF		10V
C806	1-100-159-11	CERAMIC CHIP	22uF	10%	6.3V
C808	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C809	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C810	1-125-837-11	CERAMIC CHIP	1uF	10%	6.3V
C812	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C815	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C816	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C817	1-125-837-11	CERAMIC CHIP	1uF	10%	6.3V
C818	1-125-837-11	CERAMIC CHIP	1uF	10%	6.3V
C819	1-125-837-11	CERAMIC CHIP	1uF	10%	6.3V
C821	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C830	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C833	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C834	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C835	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C896	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C897	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C898	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C899	1-164-156-11	CERAMIC CHIP	0.1uF		25V
		< CONNECTOR >			
CN401	1-784-342-21	HOUSING, CONNECTOR 2P			
* CN402	1-785-877-21	HOUSING, CONNECTOR 4P			
CN601	1-573-355-11	CONNECTOR, FPC/FPC (ZIF) 15P			
CN801	1-573-935-11	CONNECTOR, FFC/FPC (ZIF) 26P			
		< DIODE >			
D402	8-719-081-34	DIODE RB160M-30TR			
D403	8-719-081-34	DIODE RB160M-30TR			
D405	8-719-081-34	DIODE RB160M-30TR			
D421	8-719-404-50	DIODE MA111-TX			
D422	8-719-404-50	DIODE MA111-TX			
D425	8-719-083-04	DIODE RSB6.8STE61			
D426	8-719-083-04	DIODE RSB6.8STE61			
D801	8-719-421-27	DIODE MA728			

Ref. No.	Part No.	Description			Remark
		< FERRITE BEAD >			
FB101	1-500-234-22	BEAD, FERRITE (CHIP)			
FB201	1-500-234-22	BEAD, FERRITE (CHIP)			
FB303	1-414-813-11	FERRITE, EMI (SMD)			
FB305	1-414-813-11	FERRITE, EMI (SMD)			
FB401	1-414-760-21	FERRITE, EMI (SMD)			
FB402	1-414-760-21	FERRITE, EMI (SMD)			
FB403	1-414-760-21	FERRITE, EMI (SMD)			
FB404	1-216-864-11	METAL CHIP	0	5%	1/10W
FB405	1-414-760-21	FERRITE, EMI (SMD)			
FB406	1-414-813-11	FERRITE, EMI (SMD)			
FB407	1-216-295-11	SHORT CHIP	0		
FB408	1-414-760-21	FERRITE, EMI (SMD)			
FB409	1-414-760-21	FERRITE, EMI (SMD)			
FB410	1-414-760-21	FERRITE, EMI (SMD)			
FB411	1-400-180-11	INDUCTOR, EMI FERRITE			
FB413	1-469-324-21	INDUCTOR (EMI FERRITE)			
FB414	1-469-324-21	INDUCTOR (EMI FERRITE)			
FB601	1-414-760-21	FERRITE, EMI (SMD)			
FB602	1-414-760-21	FERRITE, EMI (SMD)			
FB701	1-500-245-11	FERRITE, EMI (SMD)			
FB702	1-414-760-21	FERRITE, EMI (SMD)			
FB704	1-414-813-11	FERRITE, EMI (SMD)			
		< IC >			
IC301	8-759-681-65	IC AN7531SA			
IC403	6-704-187-01	IC TB2138AFG			
IC601	8-752-419-91	IC CXD3048R			
IC603	6-704-412-01	IC GLT4160N04-100TC			
IC701	8-753-204-65	IC CXR710160-203R			
IC801	6-802-813-01	IC TMP91CW28FG-4PNO			
IC802	6-703-892-01	IC MM3032EULE			
IC803	NOT SUPPLIED				
IC806	6-703-916-01	IC XC6206P152MR			
		< TRANSISTOR >			
IC702	6-550-559-01	TRANSISTOR XN0NE9200LS0			
		< JACK >			
J301	1-815-135-32	JACK, HEADPHONE (🎧)			
J401	1-778-153-51	JACK,DC (POLARITY UNIFIED TYPE) (DC IN 4.5V)			
		< COIL >			
L301	1-469-525-91	INDUCTOR	10uH		
L401	1-400-373-21	INDUCTOR	4.7uH		
L402	1-400-373-21	INDUCTOR	4.7uH		
L403	1-414-402-11	INDUCTOR	47uH		
L404	1-414-406-11	INDUCTOR	220uH		
L406	1-400-145-21	INDUCTOR	47uH		
L407	1-456-178-21	COIL, CHOKE	100uH		
L408	1-414-406-11	INDUCTOR	220uH		
L409	1-400-145-21	INDUCTOR	47uH		
L411	1-414-402-11	INDUCTOR	47uH		
L412	1-216-296-11	SHORT CHIP	0		
L601	1-400-389-21	INDUCTOR	10uH		
L602	1-469-526-91	INDUCTOR	22uH		

Ref. No.	Part No.	Description			Remark
L603	1-400-386-21	INDUCTOR	10uH		
L703	1-469-527-91	INDUCTOR	47uH		
L704	1-469-527-91	INDUCTOR	47uH		
		< LIQUID CRYSTAL DISPLAY >			
LCD801	1-805-379-11	DISPLAY PANEL, LIQUID CRYSTAL			
		< TRANSISTOR >			
Q402	6-550-070-01	TRANSISTOR	2SB1237TV2PQR		
Q601	8-729-054-79	TRANSISTOR	2SB167900LSO		
Q801	8-729-427-72	TRANSISTOR	XP4501		
Q802	8-729-029-10	TRANSISTOR	DTC143TUA-T106		
		< RESISTOR >			
R102	1-216-845-11	METAL CHIP	100K	5%	1/10W
R111	1-216-837-11	METAL CHIP	22K	5%	1/10W
R202	1-216-845-11	METAL CHIP	100K	5%	1/10W
R211	1-216-837-11	METAL CHIP	22K	5%	1/10W
R301	1-216-793-11	METAL CHIP	4.7	5%	1/10W
R302	1-216-793-11	METAL CHIP	4.7	5%	1/10W
R303	1-216-797-11	METAL CHIP	10	5%	1/10W
R401	1-216-296-11	SHORT CHIP	0		
R402	1-216-295-11	SHORT CHIP	0		
R406	1-216-861-11	METAL CHIP	2.2M	5%	1/10W
R411	1-218-903-11	METAL CHIP	220K	0.5%	1/10W
R412	1-218-887-11	METAL CHIP	47K	0.5%	1/10W
R413	1-216-837-11	METAL CHIP	22K	5%	1/10W
R415	1-218-911-11	METAL CHIP	470K	0.5%	1/10W
R417	1-218-895-11	METAL CHIP	100K	0.5%	1/10W
R418	1-218-895-11	METAL CHIP	100K	0.5%	1/10W
R419	1-216-841-11	METAL CHIP	47K	5%	1/10W
R427	1-216-845-11	METAL CHIP	100K	5%	1/10W
R438	1-216-833-11	METAL CHIP	10K	5%	1/10W
R440	1-216-857-11	METAL CHIP	1M	5%	1/10W
R452	1-218-903-11	METAL CHIP	220K	0.5%	1/10W
R453	1-216-857-11	METAL CHIP	1M	5%	1/10W
R459	1-216-845-11	METAL CHIP	100K	5%	1/10W
R460	1-216-809-11	METAL CHIP	100	5%	1/10W
R477	1-216-864-11	METAL CHIP	0	5%	1/10W
R480	1-216-857-11	METAL CHIP	1M	5%	1/10W
R487	1-216-864-11	METAL CHIP	0	5%	1/10W
R489	1-216-864-11	METAL CHIP	0	5%	1/10W
R495	1-216-864-11	METAL CHIP	0	5%	1/10W
R498	1-216-864-11	METAL CHIP	0	5%	1/10W
R602	1-216-837-11	METAL CHIP	22K	5%	1/10W
R603	1-216-837-11	METAL CHIP	22K	5%	1/10W
R604	1-216-837-11	METAL CHIP	22K	5%	1/10W
R605	1-216-837-11	METAL CHIP	22K	5%	1/10W
R608	1-216-789-11	METAL CHIP	2.2	5%	1/10W
R610	1-216-845-11	METAL CHIP	100K	5%	1/10W
R611	1-216-817-11	METAL CHIP	470	5%	1/10W
R612	1-216-805-11	METAL CHIP	47	5%	1/10W
R618	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R619	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R621	1-216-833-11	METAL CHIP	10K	5%	1/10W
R622	1-216-857-11	METAL CHIP	1M	5%	1/10W
R623	1-216-849-11	METAL CHIP	220K	5%	1/10W
R624	1-216-833-11	METAL CHIP	10K	5%	1/10W

Ref. No.	Part No.	Description			Remark
R625	1-216-853-11	METAL CHIP	470K	5%	1/10W
R626	1-216-864-11	METAL CHIP	0	5%	1/10W
R628	1-216-837-11	METAL CHIP	22K	5%	1/10W
R629	1-216-841-11	METAL CHIP	47K	5%	1/10W
R630	1-216-841-11	METAL CHIP	47K	5%	1/10W
R632	1-216-845-11	METAL CHIP	100K	5%	1/10W
R633	1-216-845-11	METAL CHIP	100K	5%	1/10W
R636	1-216-817-11	METAL CHIP	470	5%	1/10W
R638	1-216-817-11	METAL CHIP	470	5%	1/10W
R639	1-216-817-11	METAL CHIP	470	5%	1/10W
R640	1-216-817-11	METAL CHIP	470	5%	1/10W
R641	1-216-817-11	METAL CHIP	470	5%	1/10W
R642	1-216-817-11	METAL CHIP	470	5%	1/10W
R643	1-216-817-11	METAL CHIP	470	5%	1/10W
R645	1-216-864-11	METAL CHIP	0	5%	1/10W
R646	1-216-864-11	METAL CHIP	0	5%	1/10W
R648	1-216-837-11	METAL CHIP	22K	5%	1/10W
R649	1-216-817-11	METAL CHIP	470	5%	1/10W
R662	1-216-841-11	METAL CHIP	47K	5%	1/10W
R663	1-216-845-11	METAL CHIP	100K	5%	1/10W
R670	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R702	1-216-813-11	METAL CHIP	220	5%	1/10W
R703	1-216-813-11	METAL CHIP	220	5%	1/10W
R707	1-216-845-11	METAL CHIP	100K	5%	1/10W
R711	1-216-845-11	METAL CHIP	100K	5%	1/10W
R713	1-216-864-11	METAL CHIP	0	5%	1/10W
R714	1-216-864-11	METAL CHIP	0	5%	1/10W
R715	1-216-864-11	METAL CHIP	0	5%	1/10W
R716	1-216-833-11	METAL CHIP	10K	5%	1/10W
R717	1-216-864-11	METAL CHIP	0	5%	1/10W
R718	1-216-864-11	METAL CHIP	0	5%	1/10W
R719	1-216-864-11	METAL CHIP	0	5%	1/10W
R722	1-216-813-11	METAL CHIP	220	5%	1/10W
R723	1-216-813-11	METAL CHIP	220	5%	1/10W
R724	1-216-813-11	METAL CHIP	220	5%	1/10W
R727	1-216-813-11	METAL CHIP	220	5%	1/10W
R730	1-216-864-11	METAL CHIP	0	5%	1/10W
R731	1-216-857-11	METAL CHIP	1M	5%	1/10W
R732	1-216-857-11	METAL CHIP	1M	5%	1/10W
R733	1-216-857-11	METAL CHIP	1M	5%	1/10W
R735	1-216-833-11	METAL CHIP	10K	5%	1/10W
R802	1-216-821-11	METAL CHIP	1K	5%	1/10W
R803	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R804	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R805	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R806	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R807	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R808	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R809	1-216-833-11	METAL CHIP	10K	5%	1/10W
R811	1-218-871-11	METAL CHIP	10K	0.5%	1/10W
R812	1-218-871-11	METAL CHIP	10K	0.5%	1/10W
R813	1-218-871-11	METAL CHIP	10K	0.5%	1/10W
R814	1-216-864-11	METAL CHIP	0	5%	1/10W
R815	1-216-857-11	METAL CHIP	1M	5%	1/10W
R818	1-216-864-11	METAL CHIP	0	5%	1/10W
R820	1-216-864-11	METAL CHIP	0	5%	1/10W
R821	1-216-864-11	METAL CHIP	0	5%	1/10W
R823	1-216-864-11	METAL CHIP	0	5%	1/10W

MAIN

Ref. No.	Part No.	Description			Remark
R824	1-216-864-11	METAL CHIP	0	5%	1/10W
R826	1-216-857-11	METAL CHIP	1M	5%	1/10W
R828	1-216-861-11	METAL CHIP	2.2M	5%	1/10W
R830	1-216-853-11	METAL CHIP	470K	5%	1/10W
R831	1-216-857-11	METAL CHIP	1M	5%	1/10W
R832	1-216-853-11	METAL CHIP	470K	5%	1/10W
R833	1-216-857-11	METAL CHIP	1M	5%	1/10W
R834	1-216-833-11	METAL CHIP	10K	5%	1/10W
R837	1-216-864-11	METAL CHIP	0	5%	1/10W
R839	1-216-864-11	METAL CHIP	0	5%	1/10W
R840	1-216-833-11	METAL CHIP	10K	5%	1/10W
R842	1-216-864-11	METAL CHIP	0	5%	1/10W
R865	1-216-833-11	METAL CHIP	10K	5%	1/10W
R866	1-216-833-11	METAL CHIP	10K	5%	1/10W
R867	1-216-833-11	METAL CHIP	10K	5%	1/10W
R874	1-216-837-11	METAL CHIP	22K	5%	1/10W
R877	1-216-845-11	METAL CHIP	100K	5%	1/10W
R886	1-216-845-11	METAL CHIP	100K	5%	1/10W
R894	1-216-833-11	METAL CHIP	10K	5%	1/10W
R897	1-216-864-11	METAL CHIP	0	5%	1/10W
R898	1-216-821-11	METAL CHIP	1K	5%	1/10W
R908	1-216-864-11	METAL CHIP	0	5%	1/10W
R911	1-216-845-11	METAL CHIP	100K	5%	1/10W
R912	1-216-833-11	METAL CHIP	10K	5%	1/10W
R913	1-216-845-11	METAL CHIP	100K	5%	1/10W
R914	1-216-845-11	METAL CHIP	100K	5%	1/10W
R933	1-216-833-11	METAL CHIP	10K	5%	1/10W
R934	1-216-833-11	METAL CHIP	10K	5%	1/10W
R935	1-216-845-11	METAL CHIP	100K	5%	1/10W
R941	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R942	1-216-833-11	METAL CHIP	10K	5%	1/10W
R943	1-216-841-11	METAL CHIP	47K	5%	1/10W
R944	1-216-837-11	METAL CHIP	22K	5%	1/10W
R945	1-216-841-11	METAL CHIP	47K	5%	1/10W
R946	1-216-837-11	METAL CHIP	22K	5%	1/10W
R947	1-216-841-11	METAL CHIP	47K	5%	1/10W
R948	1-216-837-11	METAL CHIP	22K	5%	1/10W
R949	1-216-845-11	METAL CHIP	100K	5%	1/10W
R971	1-216-845-11	METAL CHIP	100K	5%	1/10W
R991	1-216-833-11	METAL CHIP	10K	5%	1/10W
R992	1-216-833-11	METAL CHIP	10K	5%	1/10W
R993	1-216-864-11	METAL CHIP	0	5%	1/10W
R1001	1-216-853-11	METAL CHIP	470K	5%	1/10W
		< SWITCH >			
S801	1-786-211-21	SWITCH, KEYBOARD (►II)			
S802	1-786-211-21	SWITCH, KEYBOARD (►►I)			
S803	1-786-211-21	SWITCH, KEYBOARD (I◄◄)			
S804	1-553-977-00	SWITCH, SLIDE (G-PROTECTION)			
S806	1-786-211-21	SWITCH, KEYBOARD (VOL +)			
S809	1-786-211-21	SWITCH, KEYBOARD (VOL –)			
S810	1-572-922-11	SWITCH, SLIDE (HOLD)			
S811	1-786-211-21	SWITCH, KEYBOARD (DISPLAY)			
S812	1-786-211-21	SWITCH, KEYBOARD (■)			
S813	1-786-211-21	SWITCH, KEYBOARD (P.MODE)			
S814	1-786-211-21	SWITCH, KEYBOARD (SOUND/AVLS)			
S820	1-762-003-11	SWITCH, PUSH (OPEN/CLOSE)			

Ref. No.	Part No.	Description	Remark
		< VARISTOR >	
VDR306	1-801-923-11	VARISTOR, CHIP	
VDR307	1-801-923-11	VARISTOR, CHIP	
VDR308	1-801-923-11	VARISTOR, CHIP	
VDR401	1-801-864-21	VARISTOR, CHIP	
VDR402	1-801-864-21	VARISTOR, CHIP	
VDR404	1-801-862-11	VARISTOR, CHIP	
VDR405	1-801-862-11	VARISTOR, CHIP	
VDR408	1-801-923-11	VARISTOR, CHIP	
VDR601	1-801-862-11	VARISTOR, CHIP	
VDR602	1-801-862-11	VARISTOR, CHIP	
VDR603	1-801-862-11	VARISTOR, CHIP	
VDR610	1-801-862-11	VARISTOR, CHIP	
VDR701	1-801-862-11	VARISTOR, CHIP	
VDR702	1-801-862-11	VARISTOR, CHIP	
VDR703	1-801-862-11	VARISTOR, CHIP	
VDR704	1-801-862-11	VARISTOR, CHIP	
VDR801	1-801-862-11	VARISTOR, CHIP	
		< VIBRATOR >	
X601	1-795-101-21	VIBRATOR, CERAMIC (16.934MHz)	
X701	1-813-092-21	VIBRATOR, CERAMIC (22MHz)	
**********			
		MISCELLANEOUS	
		**********	
⚠57	X-3380-950-1	DAX-25E RP ASSY	
M501	A-3174-850-A	MOTOR ASSY, SLED (SLED)	
M502	A-3608-777-A	MOTOR ASSY, TURNTABLE (SPINDLE)	
**********			
		ACCESSORIES	
		**********	
⚠	1-477-500-21	ADAPTOR, AC (AC-ES455K) (E18)	
⚠	1-477-502-41	ADAPTOR, AC (AC-ES455K) (E92,MX)	
	3-252-232-11	MANUAL, INSTRUCTION (SONICSTAGE SIMPLE BURNER) (ENGLISH,SPANISH,PORTUGUESE) (E18,E92,MX)	
	3-252-232-71	MANUAL, INSTRUCTION (SONICSTAGE SIMPLE BURNER) (ENGLISH) (US)	
	3-252-232-81	MANUAL, INSTRUCTION (SONICSTAGE SIMPLE BURNER) (ENGLISH,FRENCH) (CND)	
	3-257-666-11	MANUAL, INSTRUCTION (ENGLISH,SPANISH,PORTUGUESE) (E18,E92,MX)	
	3-257-666-61	MANUAL, INSTRUCTION (ENGLISH) (US)	
	3-257-666-71	MANUAL, INSTRUCTION (ENGLISH,FRENCH) (CND)	
	8-954-007-95	RECEIVER, EAR MDR-027LP (US)	
	8-954-008-93	RECEIVER, EAR MDR-E808LP (E18,E92,MX)	
	X-3383-728-2	CD-ROM (APPLICATION) ASSY (US,CND)	
	X-3383-731-1	CD-ROM (APPLICATION) ASSY (E18)	
	X-3383-733-1	CD-ROM (APPLICATION) ASSY (E92)	
	X-3383-735-2	CD-ROM (APPLICATION) ASSY (MX)	

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.

MEMO

REVISION HISTORY

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Also, clicking the version at the upper on the revised page allows you to jump to the next revised page.

Ver.	Date	Description of Revision
1.0	2003. 07	New