

YAMAHA PortaSound PSS-560

SERVICE MANUAL



PSS-560

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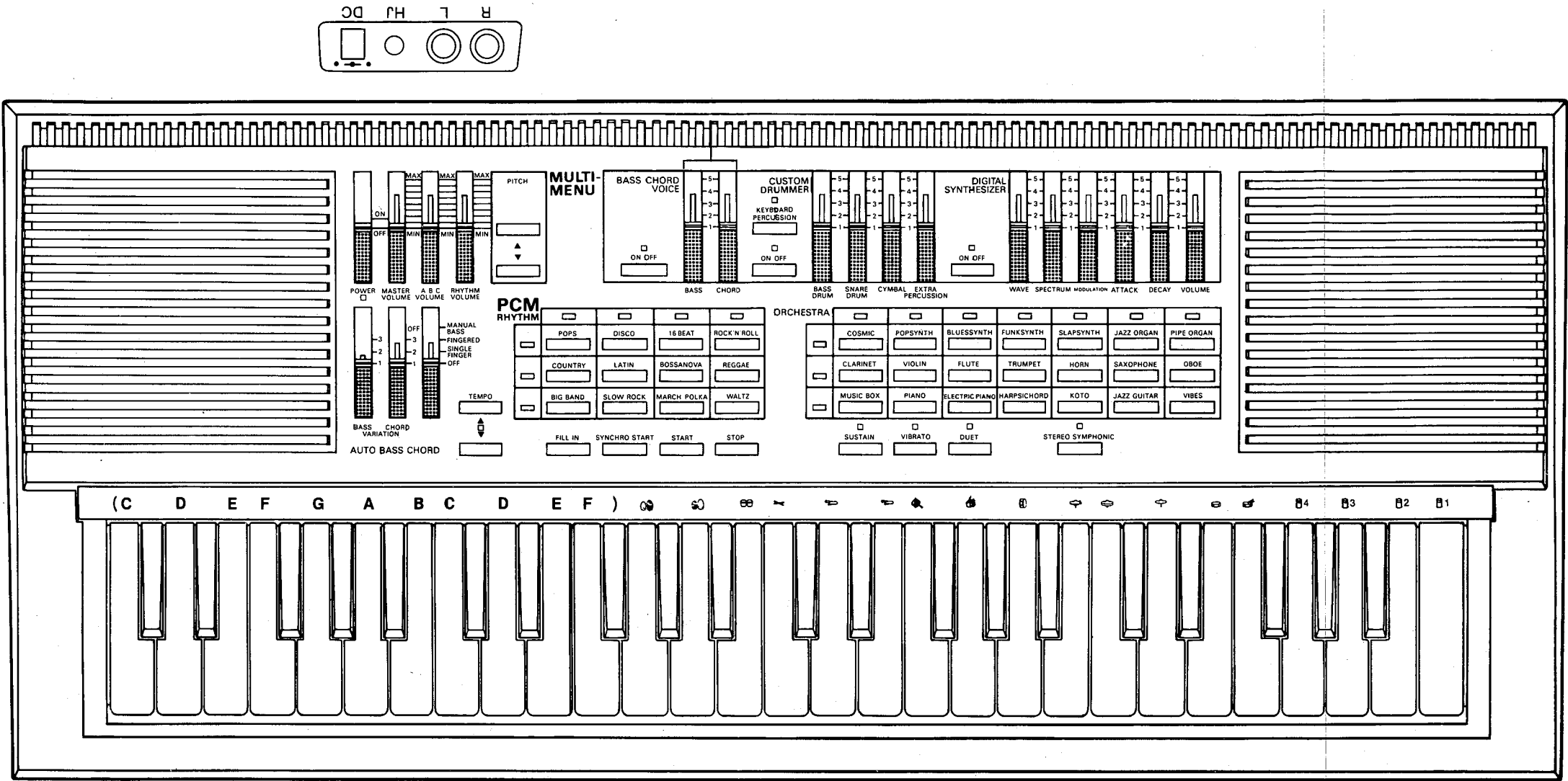


YAMAHA

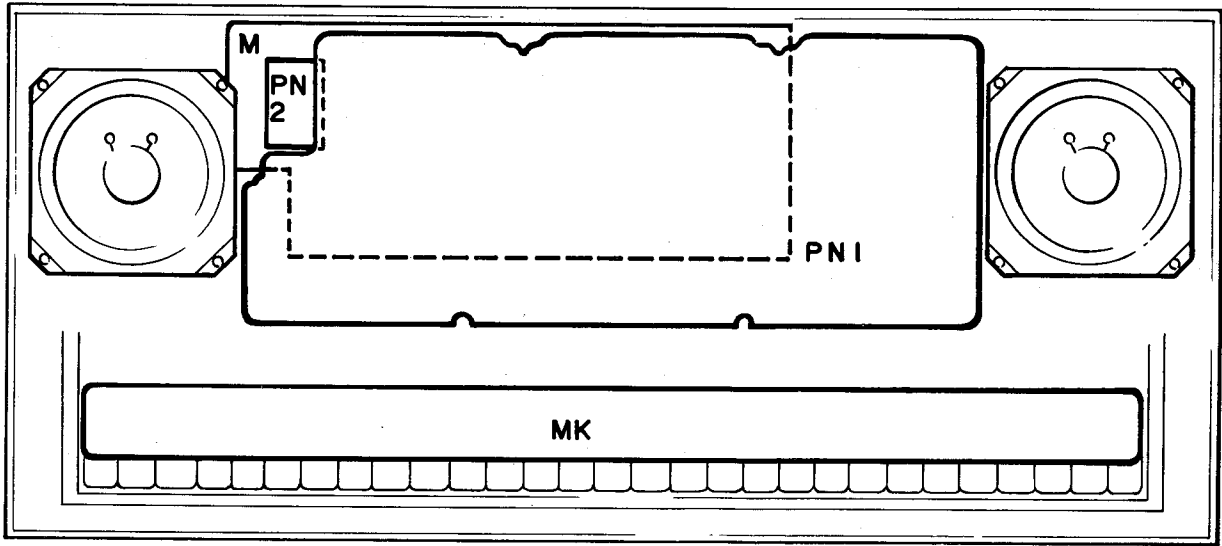
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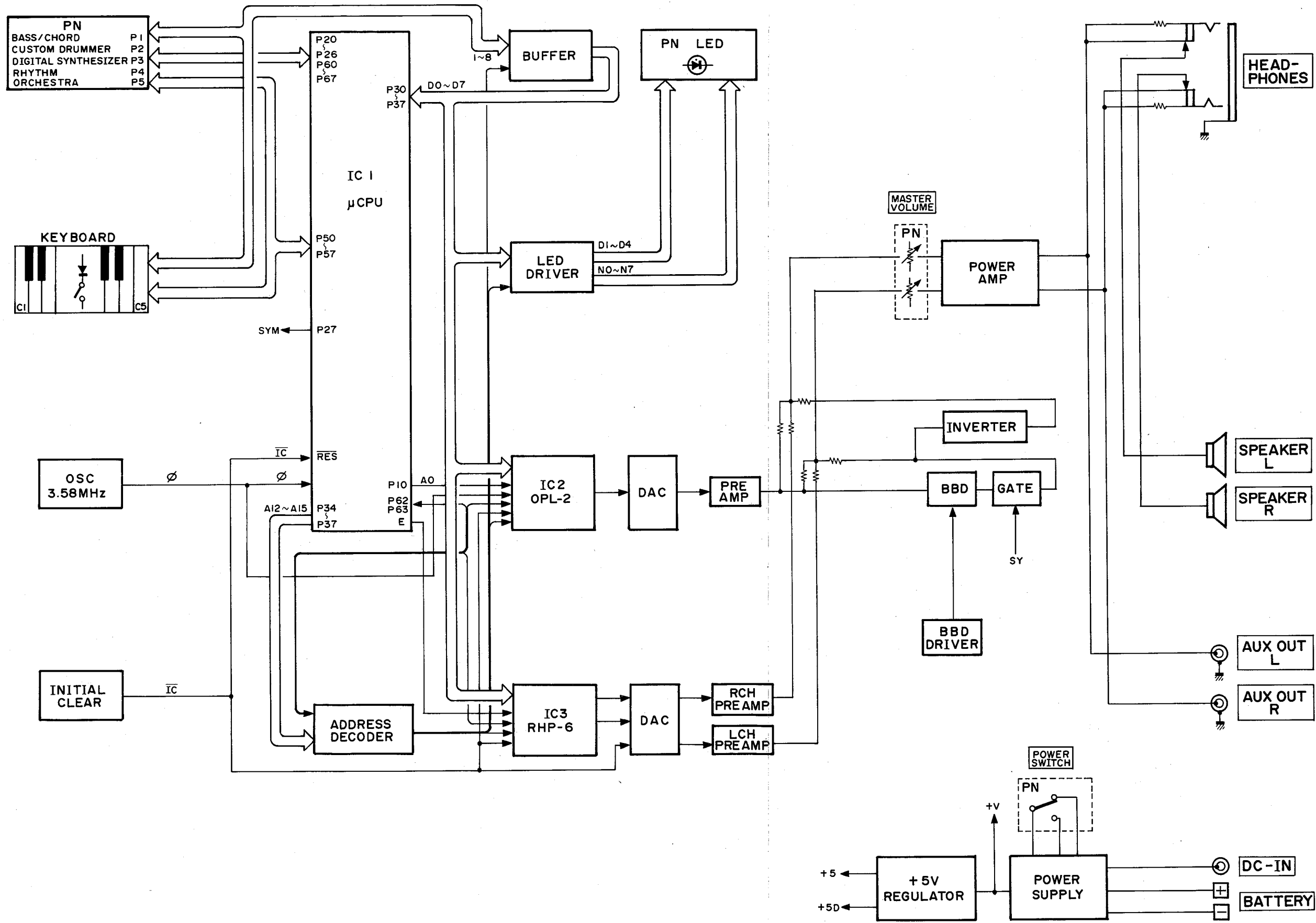
■PANEL LAYOUT (パネルレイアウト)



■CIRCUIT BOARD LAYOUT (ユニットレイアウト)



■BLOCK DIAGRAM (ブロック図)



LSI DATA TABLE (LSI端子機能表)

HD63B01Y0A66P CPU

PIN NO.	NAME	I/O	FUNCTION	PIN NO.	NAME	I/O	FUNCTION
1	Vss	I	Ground	33	Vcc	O	DC Supply (+5V)
2	XTAL	I	Clock (8MHz)	34	P47	O	Port 4
3	EXTAL	I		35	P46	O	
4	MP0	I	Mode program	36	P45	O	
5	MP1	I		37	P44	O	
6	RES	I	Reset	38	P43	O	
7	STBY	I	Stand-by mode signal	39	P42	O	Ground
8	NMI	I	Non-maskable interrupt	40	P41	O	
9	P20	I/O	Port 2	41	P40	O	
10	P21	I/O		42	Vss	I	
11	P22	I/O		43	P17	O	Port 1
12	P23	I/O		44	P16	O	
13	P24	I/O		45	P15	O	
14	P25	I/O		46	P14	O	
15	P26	I/O		47	P13	O	Port 3
16	P27	I/O	Port 5	48	P12	O	
17	P50	I		49	P11	O	
18	P51	I		50	P10	O	
19	P52	I		51	P37	I/O	
20	P53	I		52	P36	I/O	Port 7
21	P54	I		53	P35	I/O	
22	P55	I	Port 6	54	P34	I/O	
23	P56	I		55	P33	I/O	
24	P57	I		56	P32	I/O	
25	P60	I/O		57	P31	I/O	
26	P61	I/O		58	P30	I/O	Enable
27	P62	I/O		59	P74	O	
28	P63	I/O		60	P73	O	
29	P64	I/O		61	P72	O	
30	P65	I/O		62	P71	O	
31	P66	I/O		63	P70	O	
32	P67	I/O		64	E	I	

Mode Program

	MP0	MP1
Mode 1	H	L
Mode 2	L	H
Mode 3	H	H

Port

	Mode 1, 2	Mode 3
Port 1	Address bus (A0 ~ A7)	O Port
Port 2	I/O Port	I/O Port
Port 3	Data bus (D0 ~ D7)	I/O Port
Port 4	Address bus (A8 ~ A15)	O Port
Port 5	I/O Port	I Port
Port 6	I/O Port	I/O Port
Port 7	RD, WR, R/W, LIR, BA	O Port

YM3812 OPL2

PIN NO.	NAME	I/O	FUNCTION	PIN NO.	NAME	I/O	FUNCTION
1	Vss	I	DC Supply	13	D2	I	Data bus
2	IRQ	I	Interrupt request	14	D3	I	
3	IC	I	Initial clear	15	D4	I	
4	A0	I	Address bus	16	D5	I	
5	WR	I	Write control	17	D6	I	
6	RD	I	Read control	18	D7	I	No Connected
7	CS	I	Chip select	19	NC	I	
8	NC	I	No Connected	20	SH	O	
9	NC	I		21	MO	O	
10	D0	I	Data bus	22	NC	I	
11	D1	I		23	φSY	I	Synchro pulse
12	GND	I	Ground	24	φM	I	Clock

YM3012 DAC (2-Channel serial input Floating D/A converter)

PIN NO.	NAME	I/O	FUNCTION	PIN NO.	NAME	I/O	FUNCTION
1	VDD	I	DC supply (+5V)	9	CH1	O	Sample and hold analog SW output (ch1)
2	CLOCK	I	Timing clock	10	CH2	O	" (ch2)
3	D.GND	I	Digital ground	11	COM	I	Ch1 ch2 analog SW common input
4	SD	I	Serial data input	12	A.OUT	O	Analog output to Buffer AMP
5	SAM2	I	Sample and hold (ch2)	13	MP	I	Middle point 1/2 VDD bias
6	SAM1	I	" (ch1)	14	BC	I	Bias compensation
7	ICL	I	Initial clear	15	RB	O	Bias-R
8	A. GND	I	Analog ground	16	A. GND	I	Analog ground

YM3301 RYP6

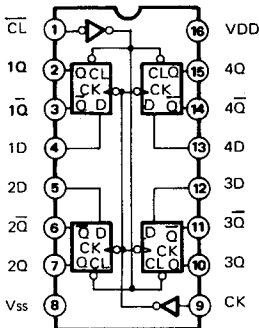
PIN NO.	NAME	I/O	FUNCTION	PIN NO.	NAME	I/O	FUNCTION
1	Vss	I	Digital ground	15	CS	I	Chip select
2	Xtal	I	Clock	16	IRQ	I	Interrupt request
3	EXtal	I		17	IC	I	Initial clear
4	RD	I	Read control	18	TCL	I	Not used
5	WR	I	Write control	19	TEST	I	Test
6	D0	I	Data bus	20	SM1	O	Sample and hold
7	D1	I		21	SM2	O	
8	D2	I		22	Dout	O	Serial data output
9	D3	I		23	CK	O	Synchro Pulse
10	D4	I		24	VGND	I	Analog ground
11	D5	I	Address bus	25	VREF	I	Reference voltage for ADC
12	D6	I		26	AD1	I	Tempo control
13	D7	I		27	AD2	I	
14	A0	I		28	VDD	I	DC supply

YM3014 DAC

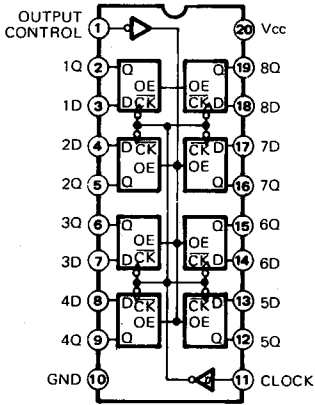
PIN NO.	NAME	I/O	FUNCTION	PIN NO.	NAME	I/O	FUNCTION
1	VDD	O	DC supply	5	O	I	Clock
2	OUT	I	Analog signal output	6	GND	I	Ground
3	LOAD	I	Sample and hold	7	RB	I	Bias-R
4	SD	I	Serial data input	8	MP	I	Middle point 1/2 VDD Bias

IC BLOCK DIAGRAM (ICブロック図)

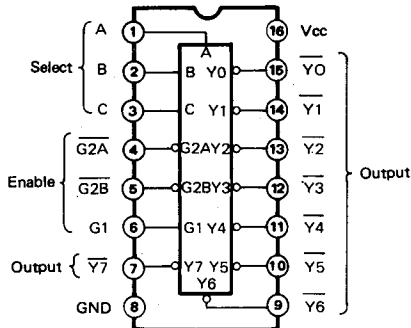
- TC40H175P (iG09670)
Quad D-Type F/F



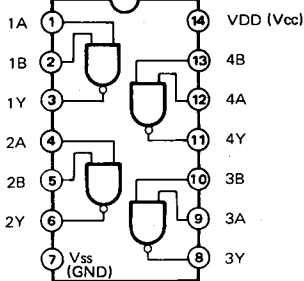
- TC40H374P (iG07860)
Octal 3 state D-FFs



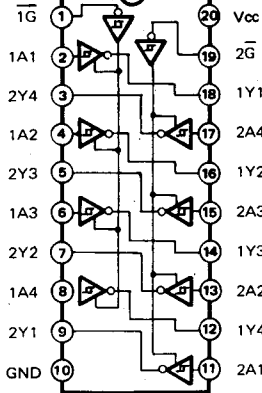
- TC40H138P (iG11190)
3 to 8 Demultiplexer



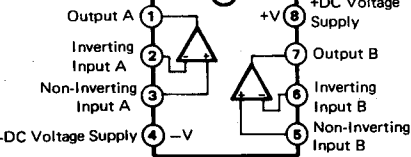
- TC40H000P (iG08070)
Quad 2-Input NAND Buffers



- TC40H240P (iG06810)
Octal 3 State Bus Inverters

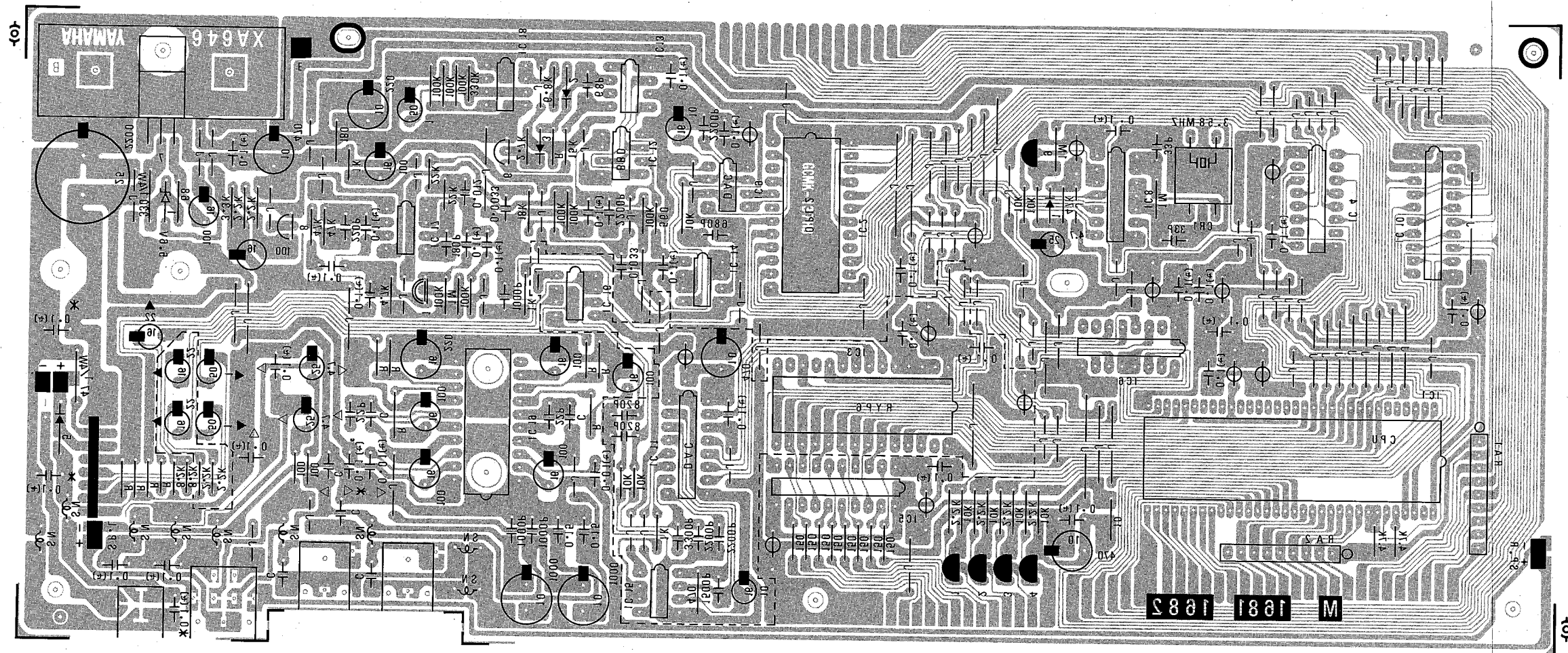


- NJM4558 (iG00139)
Dual Operational Amplifier



CIRCUIT BOARDS (シート基板図)

M Circuit Board



2NA-VB18380 △

M Circuit Board

Notes)

1.Circuit Board :XA646B

2.IC

- IC1 :HD6301Y0A66P (CPU)
- IC2 :YM3812 (OPL2)
- IC4 :TC40H175P
- IC5 :TC40H374P
- IC6 :TC40H138P
- IC8 :TC40H000P
- IC9 :YM3014 (DAC)
- IC10 :TC40H240P
- IC12 :MN3206 (BBD)
- IC13 :MN3102 (BBD DRIVER)
- IC14, 17, 18: NJM4558
- IC19 :LA4500 (P. AMP)

3.Transistor

- Tr1~4, 9 :2SA1115 (E, F)
- Tr6, 8 :2SC1815 (Y, GR)
- Tr7 :2SD880 (O, Y)

4.FET

- FET1 :2SK246 (Y)

5.Diode

- D1~D3 :1SS176
- D5 :10E-1

6.Zener Diode

- ZD1 :MTZ5.6B

7.Capacitor

- 0.1(t) :Semiconductive C. Cap. 25V, 16V

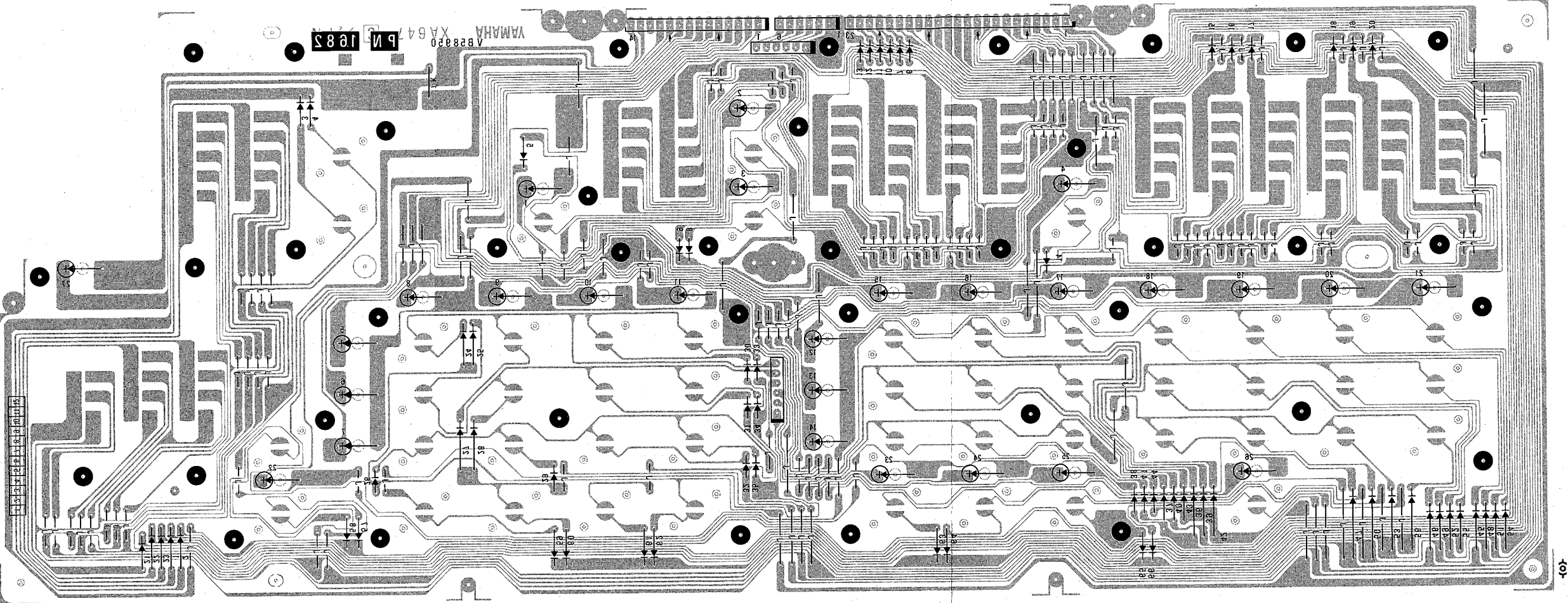
8.Ferrite Bead

- :GE30061

9.Resistor Array

- RA1, 2 :10K x 8
- 47Ω, 330Ω :1/4W

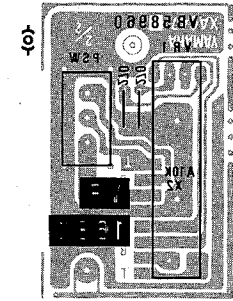
• PN Circuit Board



2NA-VB18400 $\triangle$

- PN Circuit Board
Notes)
1.Circuit Board :XA943A0
2.LED
1~25 :LT1D21A(VB25450)
3.Diode
D1~D60 :1SS176

• VR Circuit Board



- VR Circuit Board
Notes)
1.Slide VR
VR1 :A10K×2(VB25460)
2.Slide SW
PSW :VA85640

2NA-VB18400 $\triangle$

YAMAHA *PortaSound*

PSS-560

PARTS LIST

- Electrical Parts (電気部品) 1
- Overall Assembly (総組立) 2
- Keyboard Assembly (鍵盤) 4

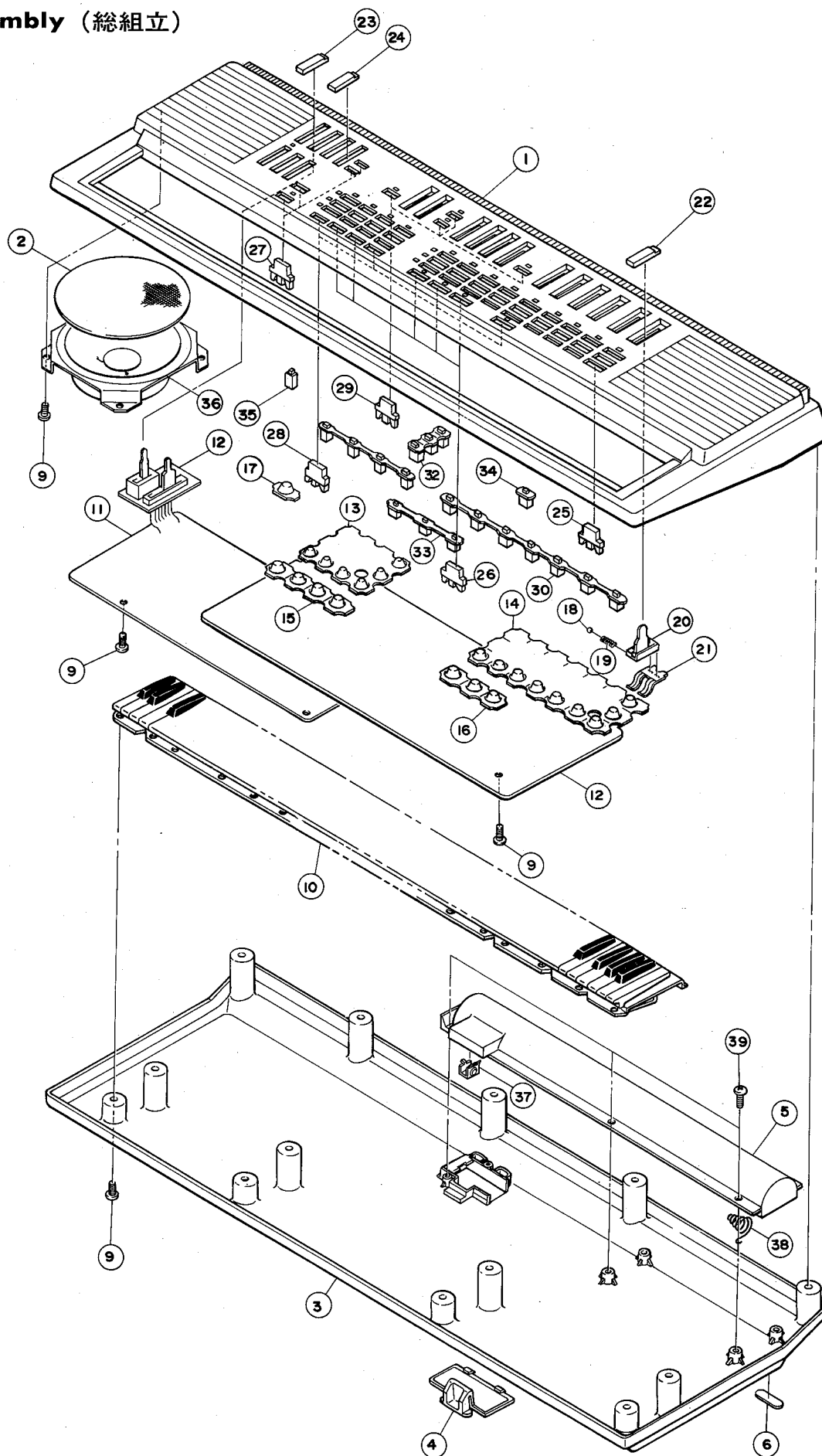
● Electrical Parts (電気部品)

Ref. No.	Part No.	Description	部 品 名	Remarks	ランク
**	VB183800	Circuit Board	M		
	XA927002	IC	HD6301Y0A66P	CPU	
	XA536001	IC	YM3812	OPL2	
	XA901001	IC	YM3301	RYP6	
	IT301200	IC	YM3012	SUX DAC	08
	IT301400	IC	YM3014	DAC	07
	IG111900	IC	TC40H138P	DEC DEMP	04
	IG096700	IC	TC40H175P	DFF	05
	IG078600	IC	TC40H374P	DFF	07
	IG080700	IC	TC40H000P	NAND	03
	IG068100	IC	TC40H240P	INV	07
	IG120600	IC	MN3209	BBD128	06
	IG094900	IC	MN3102	BBD	05
	IG001390	IC	NJM4558DV	OP. AMP.	03
	IG151600	IC	LA4500	P. AMP.	05
	IA111510	Transistor	2SA1115 E,F	トランジスタ	03
	IC181580	Transistor	2SC1815 Y,GR	トランジスタ	03
	ID088020	Transistor	2SD880 O,Y	トランジスタ	03
	IH000590	Diode	10E-1	ダイオード	01
	IX000760	Diode	1SS176TPA4	ダイオード	01
	VA007600	Zener Diode	MTZ5.6B 5.6V	ツェナーダイオード	01
	IE102610	FET	2SK246 Y	FET	03
	HZ003200	Resistor Array	RKC1/8B8 10K J	抵抗アレイ	01
	FZ004170	Semiconductive Cera. Cap.	0.1 μ 16V M	半導体セラコン	01
	QU007500	Quartz Crystal Unit	3.579M PX-1	水晶振動子	03
**	GE901870	Coil	10 μ H SN3-205	コイル	03
	GE300610	Ferrite Bead	BL02RN1-R62T2	フェライトビーズ	01
	GE300680	Ferrite Bead	BL01RN1-A62T5	フェライトビーズ	02
	VB229900	Pin Connector		ピンコネクタ	
	VB230400	Phone Jack		ホーンジャック	
**	LB202140	Connector	DC-IN S-G9312	電源コネクタ	
	VB184000	Circuit Board	PN	P N シート	
	VB254500	LED	LT1D21A	L E D	RED
	VB254600	Slide Pot.	A10K RS21002A	二連スライド V R	
	VA856400	Slide Switch	SSG1	スライド S W	02

* New Part (NR)

ランク : Japan only

● Overall Assembly (総組立)



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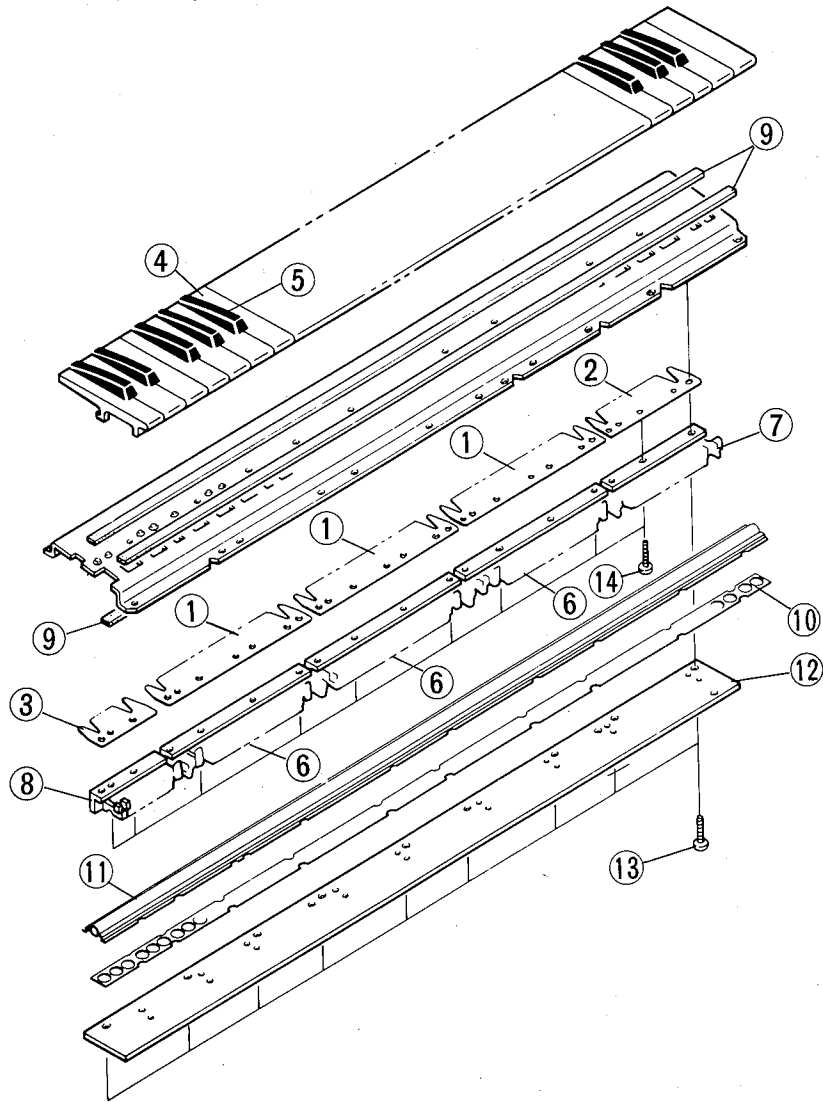
● Overall Assembly (総組立)

Ref. No.	Part No.	Description	部 品 名	Remarks	ランク
1	VB269400	Upper Case Assembly	上 ケース A s s 'y		
2	VB271100	Speaker Cloth	スピーカークロス		
3	VB155000	Lower Case	下 ケース		
4	VA912900	Battery Panel	電池 蓋		
5	VA912800	Battery Case	電池 ケース		
6	CB055690	Foot	ゴム 脚		03
7	VA916000	Tape	防振 テープ		
8	VA916200	Tape	防振 テープ		
9	EI330106	Bind Tapping Screw	3.0×10 ZMC2BL	PACK	01
10	VB271000	Keyboard Assembly	C49 K6 鍵盤 A s s 'y		
11	VB183800	Circuit Board	M		
12	VB184000	Circuit Board	PN		
13	VA922100	Rubber Contact	13J GY		
14	VA922000	Rubber Contact	13I GY		
15	VA922800	Rubber Contact	13N GY		
16	VB292700	Rubber Contact	13P GY		01
17	VA921400	Rubber Contact	13A GY		01
18	EZ001530	Steel Ball	φ 2	スチール ボール	01
19	VA917900	Spring		バネ	01
20	VA811700	Slider	BL	スライダ	01
21	BB005650	Brush		ブラシ	01
22	VA932100	Knob	BL-GG	スライド ツマミ	01
23	VB234400	Knob	BL-RE	スライド ツマミ	
24	VB271300	Knob	BL-YE	スライド ツマミ	
25	VA932500	Knob	GY	プッシュ ツマミ	01
26	VA945100	Knob	LIGHT-GY	プッシュ ツマミ	01
27	VB233700	Knob	BE	プッシュ ツマミ	
28	VB271400	Knob	OR	プッシュ ツマミ	
29	VB271500	Knob	GR	プッシュ ツマミ	
30	VB293500	Lens		レンズ	
31	VB294800	Lens		レンズ	
32	VB294900	Lens		レンズ	
33	VB295000	Lens		レンズ	
34	VB295100	Lens		レンズ	
35	VB300400	Lens		レンズ	
36	XA926001	Speaker	10cm 6Ω 3W	スピーカ	
37	BB005490	Terminal		端子板	01
38	VA914100	Spring		接点 バネ	
39	EI330086	Bind Tapping Screw	3.0×8 ZMC2BL	PACK	01

* New Part (NR)

ランク : Japan only

● Keyboard Assembly (鍵盤)



Ref. No.	Part No.	Description		部 品 名	Remarks	ランク
1	VB271000	Key Board Assembly	C49 K6	鍵盤 A S S ' Y		02
2	AA053070	Spring	F12	鍵盤 バネ		02
3	AA053080	Spring	F8	鍵盤 バネ		01
4	AA053090	Spring	C5	鍵盤 バネ		01
4	CB040370	White Key	F	白鍵		01
4	CB040380	White Key	G	白鍵		01
4	CB040390	White Key	A	白鍵		01
4	CB040400	White Key	B	白鍵		01
4	CB040410	White Key	C	白鍵		01
4	CB040420	White Key	D	白鍵		01
4	CB040430	White Key	E	白鍵		01
4	CB040440	White Key	F 'C'	白鍵		01
5	CB040450	Black Key		黒鍵		01
6	CB040470	Holder	F12	ホルダー		02
7	CB040480	Holder	F8	ホルダー		02
8	CB040490	Holder	C5	ホルダー		02
9	CC015480	Felt	575×5×1	フェルト		01
10	CB041570	Insulation Spacer		絶縁スパーサー		02
11	CB042690	Rubber Contact		可動導電ゴム		05
12	VB270900	MK Circuit Board		M K シート		
13	EI030186	Bind Tapping Screw	3.0×18 ZMC2Y	ハイトタッピングネジ*	PACK	01
14	EI030146	Bind Tapping Screw	3.0×14 ZMC2Y	ハイトタッピングネジ*	PACK	01

* New Part (NR)

ランク : Japan only

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