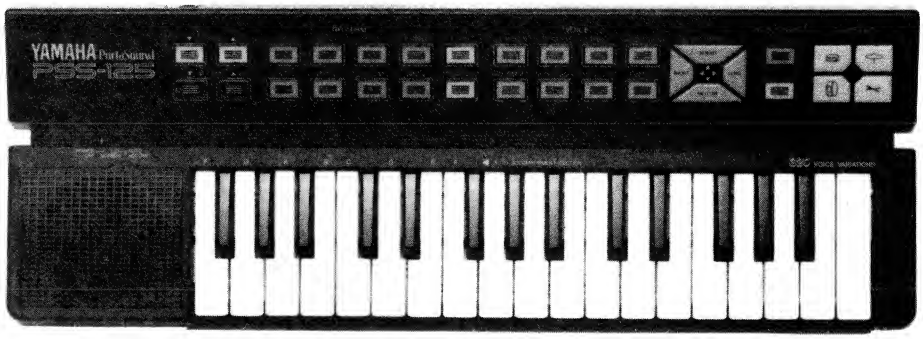
PortaSound

PSS-125

SERVICE MANUAL

PSS125



■ CONTENTS

SK 001393

YAMAHA CORP.
HAMAMATSU, JAPAN
1,048K-071 K Printed in Japan '89. 8

IMPORTANT NOTICE

This manual has been provided for the use of authorized Yamaha Retailers and their service personnel. It has been assumed that basic service procedures inherant to the industry, and more specifically Yamaha Products, are already known and understood by the users, and have therefore not been restated.

WARNING: Failure to follow appropriate service and safety procedures when servicing this product may result in personal injury, destruction of expensive components and failure of the product to perform as specified. For these reasons, we advise all Yamaha product owners that all service required should be performed by an authorized Yamaha Retailer or the appointed service representative.

IMPORTANT: The presentation or sale of this manual to any individual or firm does not constitute authorization, certification, recognition of any applicable technical capabilitites, or establish a principleagent relationship of any form.

The data provided is believed to be accurate and applicable to the unit/s indicated on the cover. The research, engineering, and service departments of Yamaha are continually striving to improve Yamaha products. Modifications are, therefore, inevitable and changes in specification are subject to change without notice or obligation to retrofit. Should any discrepancy appear to exist, please contact the distributor's Service Division.

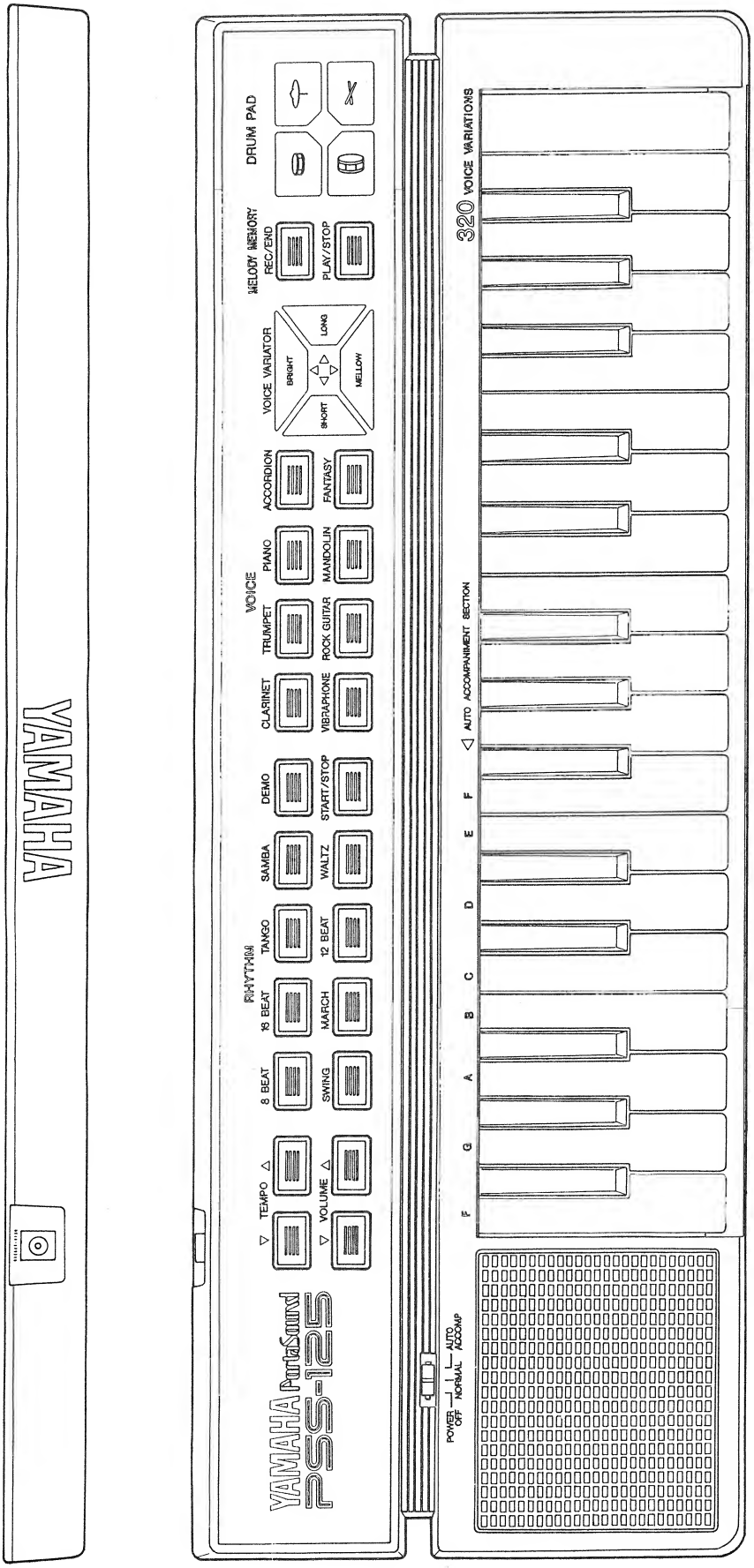
WARNING: Static discharges can destroy expensive components. Discharge any static electricity your body may have accumulated by grounding yourself to the ground buss in the unit (heavy gauge black wires connect to this buss).

IMPORTANT: Turn the unit OFF during disassembly and parts replacement. Recheck all work before you apply power to the unit.

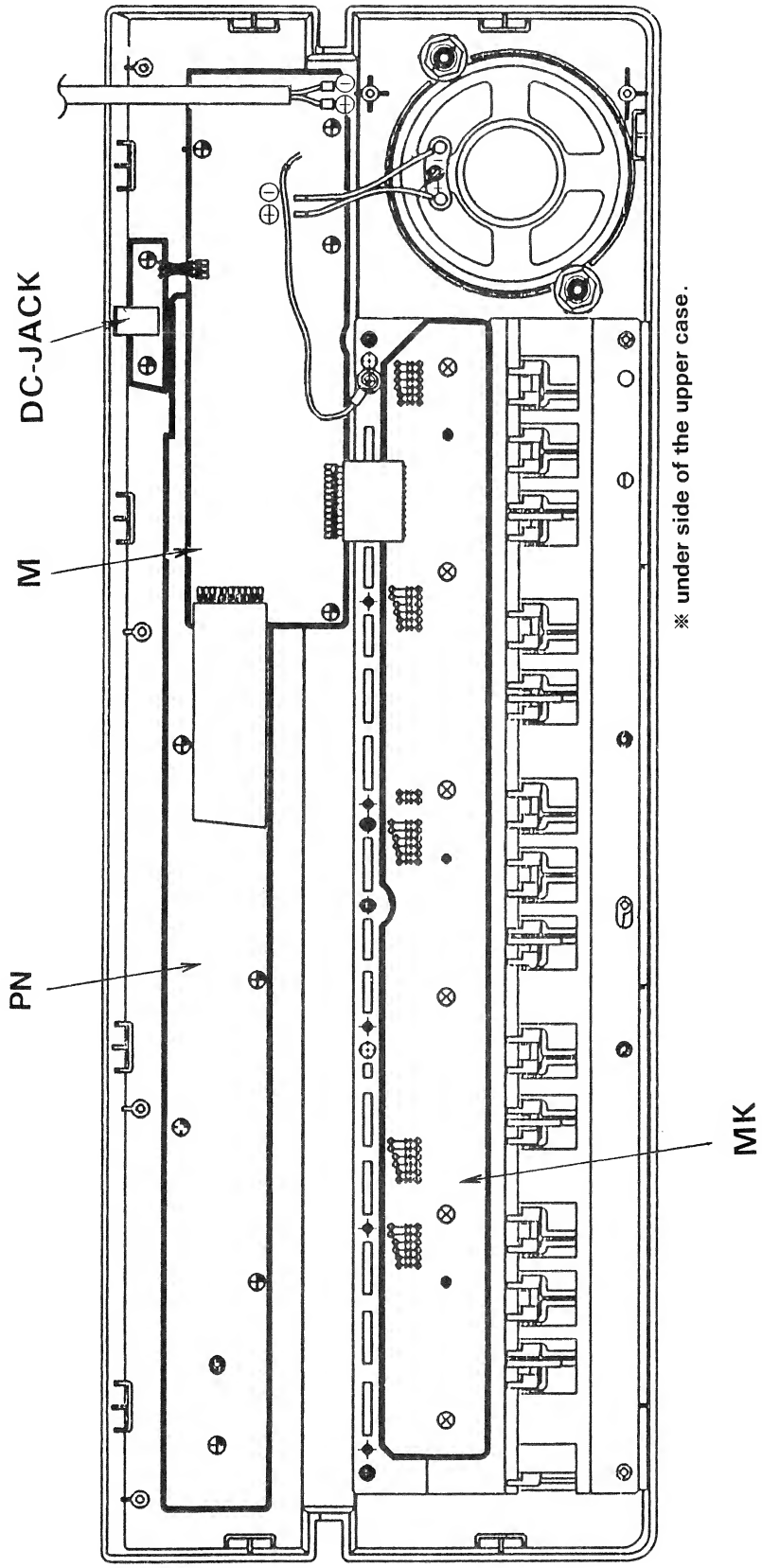
SPECIFICATIONS

Keyboard:	32 keys (F1-C4)
Voice:	8 voices Clarinet, Trumpet, Piano, Accordion, Vibraphone, Rock guitar, Mandolin, Fantasy
Rhythm style:	8 styles 8 beat, 16 beat, Tango, Samba, Swing, March, 12 beat, Waltz
Melody Memory:	REC/END, PLAY/STOP
Voice Variator:	Bright, Mellow, Long, Short
Drum Pad:	Bass drum, Snare drum, Claves, Cymbal
Other Controls:	Tempo Controls, Volume Controls, Demo, Rhythm Start/Stop, Power OFF/ NORMAL/AUTO ACCOMP Switch
Terminal:	DC (9-12V) IN
Main Amplifier:	0.7W
Speaker:	7.7cm (4 Ω)
Rated Voltage:	DC6V (4×AA-size, SUM-3, R-6 batteries) AC Power Adaptor (PA-1, PA-1B, PA-3)
Power consumption:	2.5W (with AC adaptor PA-1) 0.3W (with battery cells)
Material:	Styrole resin
Dimensions:	59mm (H) × 502mm (W) ×177.5mm (D) (2-1/3" (H) × 19-5/6" (W) × 7" (D)
Weight:	1.2kg (2-1/2lb) without batteries

■ PANEL LAYOUT



■ CIRCUIT BOARD LAYOUT



■ LSI DATA TABLE

● YM3427 (XF357A00) GE12

PIN NO.	NAME	I/O	FUNCTION	PIN NO.	NAME	I/O	FUNCTION
1	ϕ	I	Master clock	9	SCK		Clock
2	SI	I	Sirial data input	10	$\overline{IC}$	I	Initial clear
3	NC		} Not used	11	NC		} Not used
4	NC			12	NC		
5	NC			13	NC		
6	NC			14	NC		
7	SO	O	Data out	15	AO	O	Analog output
8	Vss		Ground	16	Vcc		DC supply

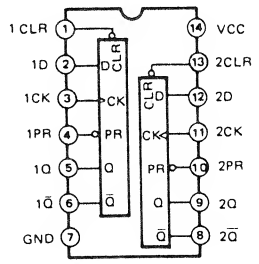
● HD6305V0 * * * P (XG724B00) CPU

PIN NO.	NAME	I/O	FUNCTION	PIN NO.	NAME	I/O	FUNCTION
1	$\overline{RES}$	I	Reset	21	C7	I/O	} Port C
2	$\overline{INT}$	I	Interrupt request	22	C6	I/O	
3	NUM		Ground	23	C5	I/O	
4	A7	I/O	} Port A	24	C4	I/O	
5	A6	I/O		25	C3	I/O	
6	A5	I/O		26	C2	I/O	
7	A4	I/O		27	C1	I/O	
8	A3	I/O		28	C0	I/O	
9	A2	I/O		29	D0	I/O	} Port D
10	A1	I/O		30	D1	I/O	
11	A0	I/O		31	D2	I/O	
12	B0	I/O	} Port B	32	TX	O	
13	B1	I/O		33	RX	I	
14	B2	I/O		34	$\overline{CK}$	O	
15	B3	I/O		35	$\overline{INT2}$	I	
16	B4	I/O		36	$\overline{STBY}$	I	Stand-by mode signal
17	B5	I/O		37	TIMER	I	Timer control signal
18	B6	I/O		38	XTAL		} Clock
19	B7	I/O		39	EXTAL		
20	Vss		Ground	40	Vcc		DC supply (+5V)

■ IC BLOCK DIAGRAM

● TC40H074P (IG055100)

Dual D-Type Flip-Flop



INPUTS				OUTPUTS	
PR	CLR	CLK	D	Q	Q̄
L	H	X	X	H	L
H	L	X	X	L	H
L	L	X	X	H	H
H	H	↑	H	H	L
H	H	↑	L	L	H
H	H	L	X	Q_0	$\bar{Q}_0$

■ DISASSEMBLY PROCEDURE（分解手順）

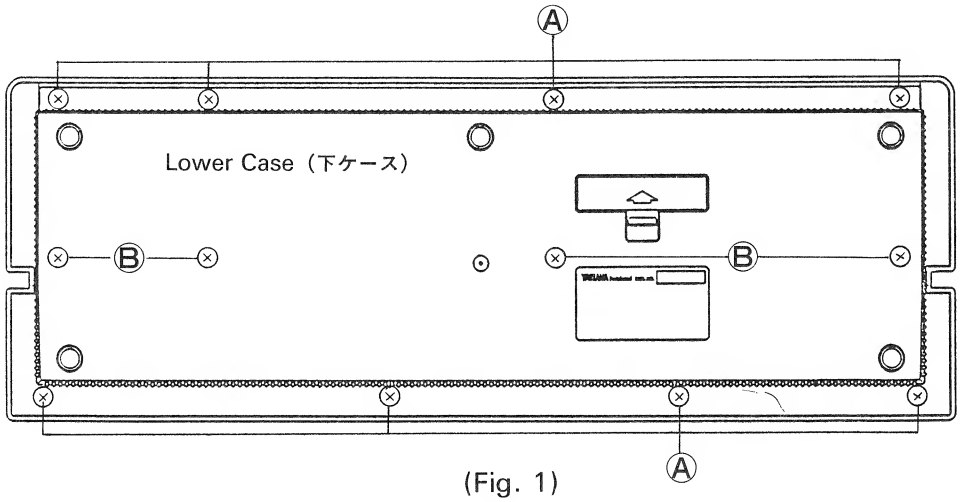
1. Lower Case Removal

1-1 The Lower case can be removed by removing the twelve (12) screws located on the Lower case, eight (8) screws Ⓐ (bind tapping screw 3.0 × 8) around the outer edge, and four (4) screws Ⓑ (bind tapping screw 3.0 × 16).(Fig. 1)

Note : Located on the Lower case are battery terminals.

1．下ケースの外し方

1-1 下ケースを止めているネジⒶ（バインドタッピングネジ3.0× 8）8本とネジⒷ（バインドタッピングネジ 3.0×16） 4本を外すと、下ケースを外すことができます。 （Fig. 1）



(Fig. 1)

2. M Circuit Board Removal

2-1 Remove the power switch knob located on the Upper case.

2-2 Remove the Lower case. (see procedure 1)

2-3 Remove the screw Ⓒ (bind tapping screw 2.6×6) retaining the rug terminal to the MK frame. (Fig. b)

2-4 The M circuit board can be removed by removing the four (4) screws Ⓓ (bind tapping screw 2.6×6). (Fig. 2)

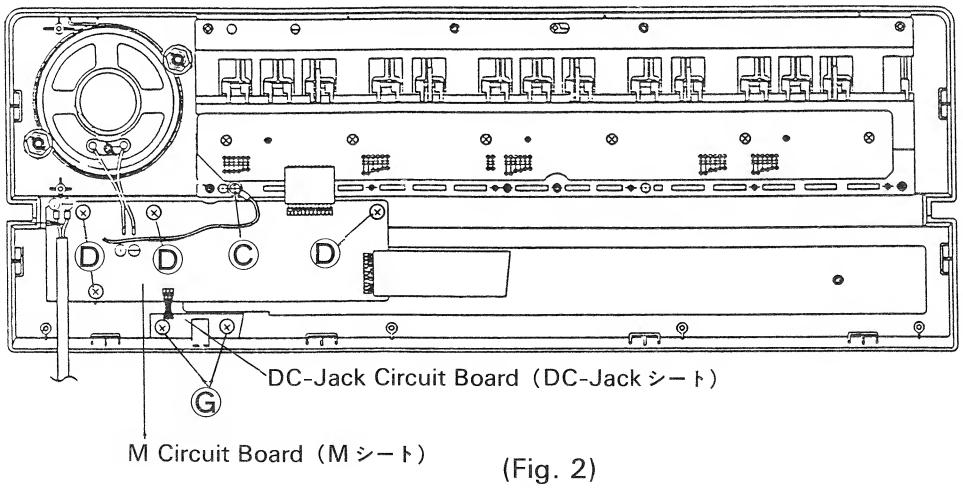
2．Mシートの外し方

2-1 パワースイッチツマミを、外します。

2-2 下ケースを外します。 （1項参照）

2-3 ラグ端子を止めているネジⒸ（バインドタッピングネジ 2.6× 6） 1本を外します。

2-4 Mシートを止めているネジⒹ(バインドタッピングネジ 2.6×6) 4本を外すと、Mシートが外れます。 （Fig. 2）



(Fig. 2)

3. PN Circuit Board Removal

3-1 Remove the Lower case.
(see procedure 1)

3-2 Remove the M circuit board.
(see procedure 2)

3-3 To remove the speaker, remove the two (2) self threading nuts Ⓔ. (Fig. 3)

3-4 The PN circuit board can be removed by removing the seven (7) screws Ⓕ (bind tapping screw 2.6 × 6). (Fig. 3)

4. DC-JACK Circuit Board Removal

4-1 Remove the Lower case.
(see procedure 1)

4-2 Remove the M circuit board.
(see procedure 2)

4-3 Remove the PN circuit board.
(see procedure 3)

4-4 The DC-JACK circuit board can be removed by removing the two (2) screws Ⓖ (bind tapping screw 2.6 × 6).
(Fig. 2)

5. MK Circuit Board Removal

5-1 Remove the Lower case.
(see procedure 1)

5-2 The MK circuit board can be removed by removing the six (6) screws Ⓗ (bind tapping screw 2.6 × 6). (Fig. 3)

3．PN シートの外し方

3-1 下ケースを外します。（1項参照）

3-2 M シートを外します。（2項参照）

3-3 セルフスレディングナット Ⓔ 2ケを外し、スピーカを外します。（Fig. 3）

3-4 ネジ Ⓕ（バインドタッピングネジ 2.6× 6）7本を外すと、PN シートが外れます。
（Fig. 3）

4．DC-JACK シートの外し方

4-1 下ケースを外します。（1項参照）

4-2 M シートを外します。（2項参照）

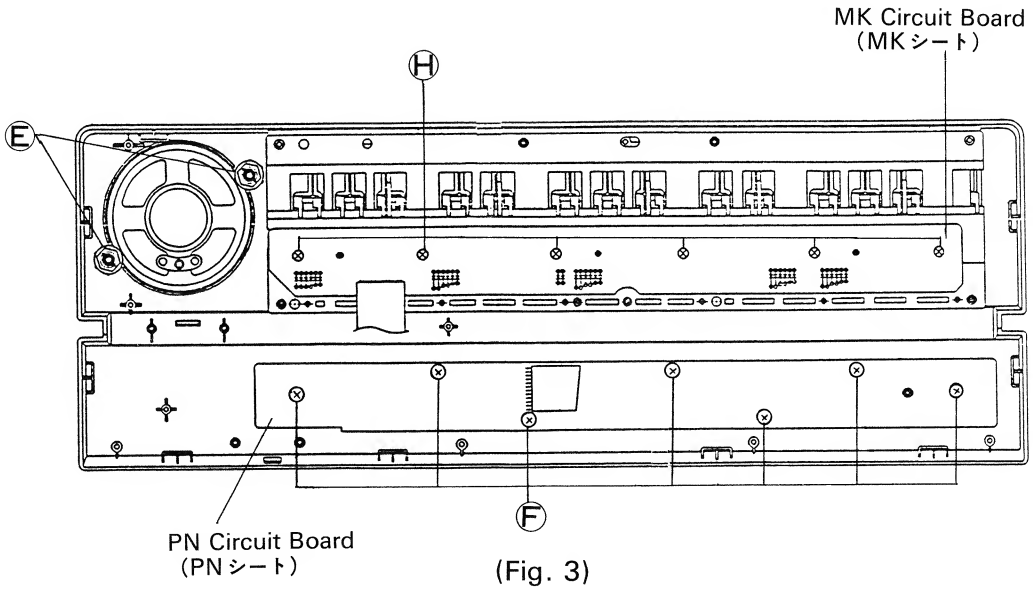
4-3 PN シートを外します。（3項参照）

4-4 ネジ Ⓖ（バインドタッピングネジ 2.6× 6）2本を外すと、DC-JACK シートが外れます。
（Fig. 2）

5．MK シートの外し方

5-1 下ケースを外します。（1項参照）

5-2 ネジ Ⓗ（バインドタッピングネジ 2.6× 6）6本を外すと、MK シートを外すことができます。（Fig. 3）



(Fig. 3)

6. Keyboard Assembly

6-1 Remove the Lower case.
(see procedure 1)

6-2 Remove the screw Ⓒ (bind tapping screw 2.6×6) retaining the lug terminal to the MK frame. (Fig. 2)

6-3 The Keyboard assembly can be taken out from the unit.

6-4 To remove the MK circuit board and Rubber contact, remove the six (6) screws Ⓗ (bind tapping screw 2.6×6). (Fig. 4)

6-5 Remove the two screws Ⓘ (bind tapping screw 2.6×10), you can remove the White and Black keys by pulling it backward. (Fig. 4)

6．鍵盤Ass'yの分解

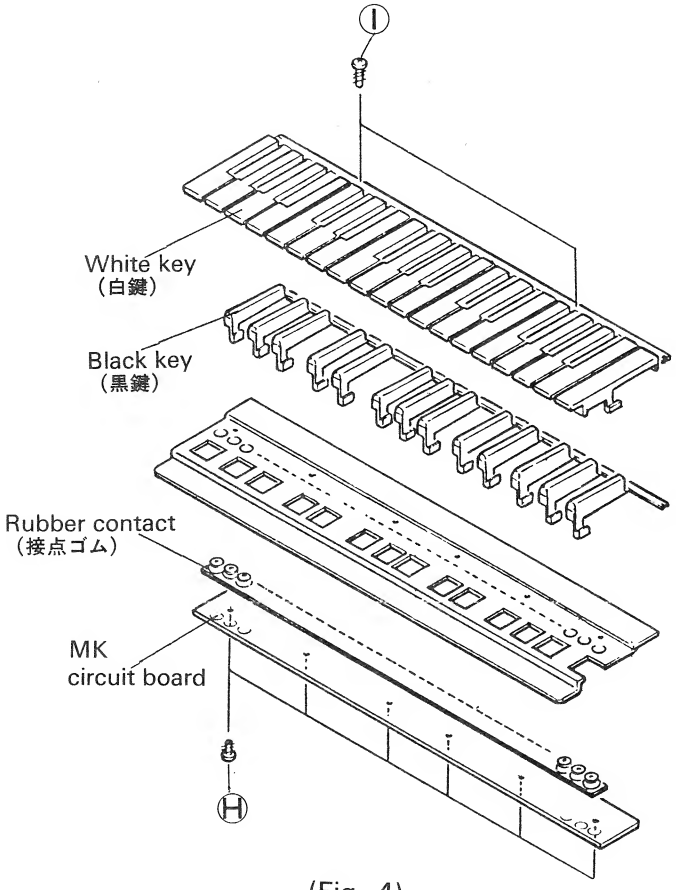
6-1 下ケースを外します。 （1項参照）

6-2 ラグ端子を止めているネジⒸ（バインドタッピングネジ 2.6×6）1本を外します。

6-3 鍵盤Ass'yを上ケースから外します。

6-4 ネジⒽ（バインドタッピングネジ 2.6×6）6本を外し、MKシートと接点ゴムを外します。 （Fig. 4）

6-5 ネジⒾ（バインドタッピングネジ 2.6×10）2本を外すと、黒鍵、白鍵を外すことができます。 （Fig. 4）



(Fig. 4)

■ TEST PROGRAM

1. Test Entry

While pressing the C4 and B3 keys, turn on the POWER switch.

2. Switch Check

After the system has entered the test program mode, when a Panel switch is pressed, a CLARINET tone will be produced as shown in the table below.

※ VOLUME : maximum VARIATOR : long

If the POWER/MODE switch is set to AUTO ACCOMP., a beep tone will be produced continuously.

SWITCH	NOTE	SWITCH	NOTE
TEMPO ▼	G♯3	PIANO	A♯1
TEMPO ▲	A♯3	ACCORDION	A1
8BEAT	B3	SHORT	F♯2
16BEAT	C4	BRIGHT	E2
TANGO	F♯3	REC/END	D2
SAMBA	C3	VIBRAPHONE	A♯2
DEMO	B2	ROCK GUITAR	A2
VOLUME ▼	G3	MANDOLIN	G♯2
VOLUME ▲	A3	FANTASY	G2
SWING	F3	MELLOW	D♯2
MARCH	E3	LONG	F2
12BEAT	D♯3	PLAY/STOP	C♯2
WALTZ	D3		BASS DRUM
START/STOP	C♯3		SNARE DRUM
CLARINET	B1		CLAVES
TRUMPET	C2		CYMBAL

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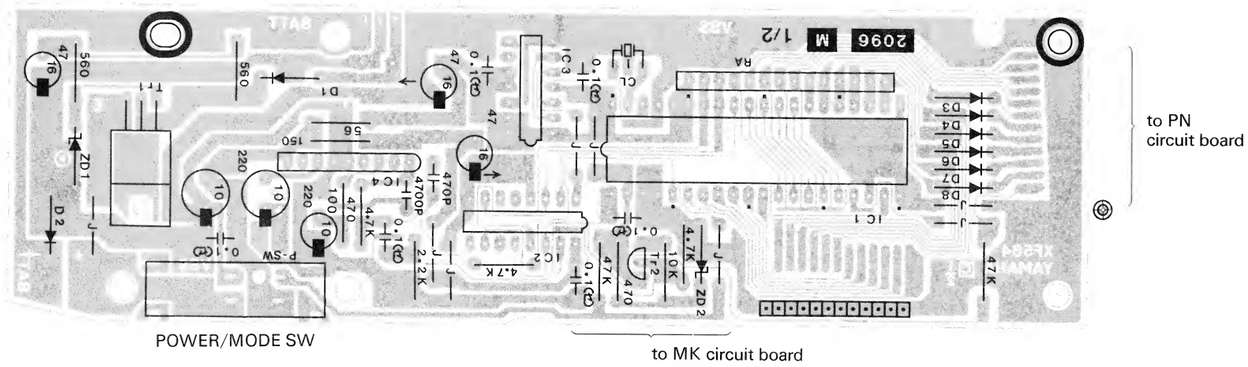
■ CIRCUIT BOARDS

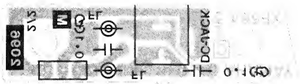
● M Circuit Board

M



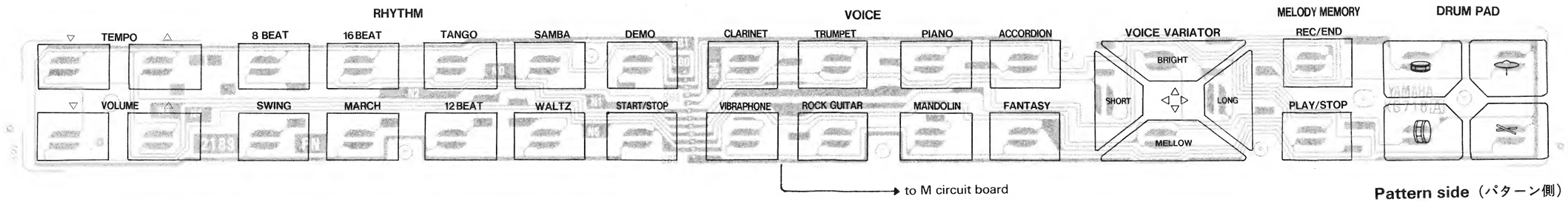
Component side（部品側）

DC JACK



Pattern side（パターン側）

● PN Circuit Board



Pattern side（パターン側）

2NA-VG61860 △ : M
2NA-VI07640 : PN

Notes)

※ Circuit Board
M (NX004060) XF564C0

1. IC
   IC1 : HD6305V0＊＊＊P (XF877B00) CPU
   IC2 : YM3427 (XF357A00) GE12
   IC3 : TC40H074P (IG051100) DFF
   IC4 : TA7368P (XF853A00) P AMP 0.7W 1CH
2. Transistor
   TR1 : 2SD880 O, Y (ID088020) or 2SD1505 E, F (VE213100)
   TR2 : 2SA1115 E, F (IA111510)
3. Diode
   D1, 2 : 1SR35-100A (IH001430) or 10E-1 (IH000590) or 11ES4 (VB481900)
   D3～8 : 1SS133 (IF003450)
4. Zener Diode
   ZD1 : MTZ6.8B 6.8V (IF008910)
   ZD2 : MTZ3.9B 3.9V (IF010600)
5. Resistor Array
   RA : RGLD13X473J (VH380800)
6. Semiconductive Cera. Cap.
   Marked 0.1(セ) : 0.1 25V Z (FZ005030)
7. Ceramic Resonator
   CL : 2.78M CST2.78MG (VG913900)
8. Coil
   Marked -◎- : 20μ FL5R200QNT (VB835000)
9. Slide Switch
   SSM2X3MB4X12 (VG893500) POWER/MODE

Note)

※ Circuit Board : PN (NX004050) XG716A0

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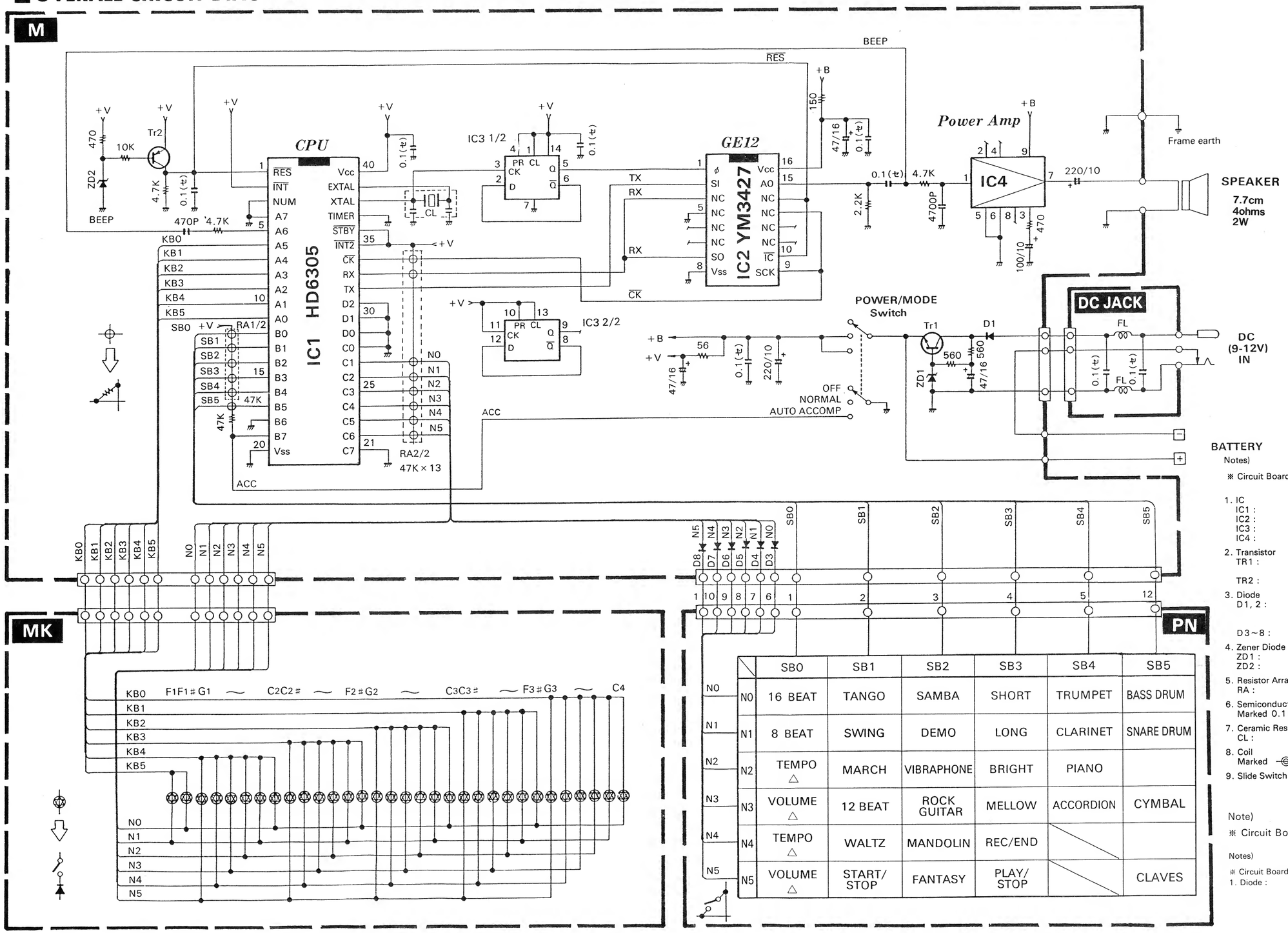
■ OVERALL CIRCUIT DIAGRAM



	SB0	SB1	SB2	SB3	SB4	SB5
N0	16 BEAT	TANGO	SAMBA	SHORT	TRUMPET	BASS DRUM
N1	8 BEAT	SWING	DEMO	LONG	CLARINET	SNARE DRUM
N2	TEMPO △	MARCH	VIBRAPHONE	BRIGHT	PIANO	
N3	VOLUME △	12 BEAT	ROCK GUITAR	MELLOW	ACCORDION	CYMBAL
N4	TEMPO △	WALTZ	MANDOLIN	REC/END		
N5	VOLUME △	START/ STOP	FANTASY	PLAY/ STOP		CLAVES

Notes)

※ Circuit Board — M (NX004060) XF564C0

1. IC
   - IC1 : HD6305V0＊＊＊P (XF877B00) CPU
   - IC2 : YM3427 (XF357A00) GE12
   - IC3 : TC40H074P (IG051100) DFF
   - IC4 : TA7368P (XF853A00) P AMP 0.7W 1CH
2. Transistor
   - TR1 : 2SD880 O, Y (ID088020) or 2SD1505 E, F (VE213100)
   - TR2 : 2SA1115 E, F (IA111510)
3. Diode
   - D1, 2 : 1SR35-100A (IH001430) or 10E-1 (IH000590) or 11ES4 (VB481900)
   - D3～8 : 1SS133 (IF003450)
4. Zener Diode
   - ZD1 : MTZ6.8B 6.8V (IF008910)
   - ZD2 : MTZ3.9B 3.9V (IF010600)
5. Resistor Array
   - RA : RGLD13X473J (VH380800)
6. Semiconductive Cera. Cap.
   - Marked 0.1 (μ) : 0.1 25V Z (FZ005030)
7. Ceramic Resonator
   - CL : 2.78M CST2.78MG (VG913900)
8. Coil
   - Marked ⊜ : 20μ FL5R200ΩNT (VB835000)
9. Slide Switch
   - SSM2X3MB4X12 (VG893500) POWER/MODE

Note)

※ Circuit Board : PN (NX004050) O) XG716A0

Notes)

※ Circuit Board : MK (VG756800) XF680A0

1. Diode : 1SS133 (IF003450) or HSS104TA (VD851400)

M (NX004060) XF564C0

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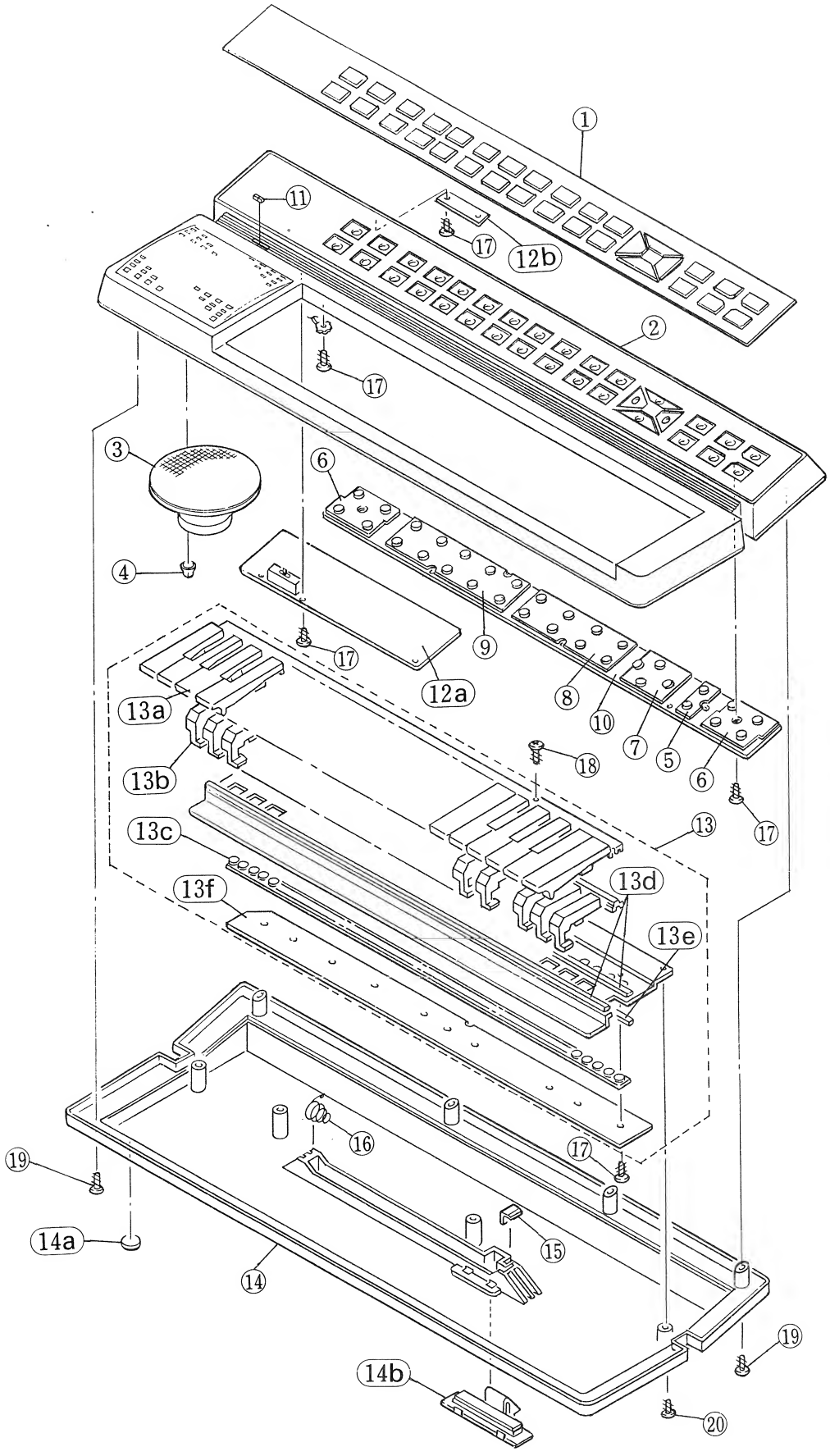
PARTS LIST

■ OVERALL ASSEMBLY



■ OVERALL ASSEMBLY

	Ref	Part No	Description		部品名	Remarks	ランク
*	1	VI022900	Touch Key Sheet		タッチキーシート	PSS-125	05
*	2	VI022500	Upper Case		上ケース		06
*	3	XG747A00	Speaker	7.7cm 4Ω 2W	スピーカー	with SP cloth	04
	4	EK003650	Self Thrading Nut	SD250095	セルフスレディング		01
	5	VG894800	Key Rubber	×2	キーラバー	MELODY MEMOLY	01
	6	VG792500	Key Rubber	×4 A	キーラバー	TEMPO VOL./PAD	01
	7	VG792800	Key Rubber	×4 B	キーラバー	VOICE VARIATOR	01
	8	VG792700	Key Rubber	×8	キーラバー	VOICE SELECTOR	03
	9	VG792600	Key Rubber	×10	キーラバー	RHYTHM SELECTOR	03
*	10	NX004050	Circuit Board	PN	PNシート		
	11	VE341900	Knob	RE	スライドツマミ	POWER/MODE	01
*	12	NX004060	Circuit Board	M	Mシート		
	12a		Circuit Board	M	Mシート		
	12b		Circuit Board	DC-JACK	DC-JACKシート		
	13	VG780200	Keyboard Assembly	F32 6K	14L鍵盤Ass'y		10
	13a	VE462100	White Key	14L-F32	白鍵		05
	13b	VD787100	Black Key	14L-F32	黒鍵		04
	13c	VD787200	Rubber Contact	14L-F32	接点ゴム		03
	13d	VD790900	MK Cushion	14L-F32	MKクッション		01
	13e	VG893200	MK Cushion	14L-F32 G	MKクッションG		01
	13f	VG756800	Circuit Board	MK	MKシート	14L F32-6K	
	14	VG796100	Lower Case Assembly		下ケースAss'y		06
	14a	VF215800	Foot	BL	ゴム足		01
	14b	VB227600	Battery Cover	BL	バッテリーカバー		02
	15	BB005490	Terminal		端子板		01
	16	VD857600	Spring Terminal	R6X6	接点バネ		01
	17	EI026066	Bind Head Tapping Screw	2.6X 6 ZMC2Y	ﾊﾞｲﾝﾄﾞﾀｯﾋﾟﾝｸﾞﾈｼﾞ		01
	18	EI026106	Bind Head Tapping Screw	2.6X10 ZMC2Y	ﾊﾞｲﾝﾄﾞﾀｯﾋﾟﾝｸﾞﾈｼﾞ		01
	19	EI330086	Bind Head Tapping Screw	3.0X 8 FCM3BL	ﾊﾞｲﾝﾄﾞﾀｯﾋﾟﾝｸﾞﾈｼﾞ		01
	20	EI330166	Bind Head Tapping Screw	3.0X16 FCM3BL	ﾊﾞｲﾝﾄﾞﾀｯﾋﾟﾝｸﾞﾈｼﾞ		01

*:New Parts （新規部品）

ランク:Japan Only

■ELECTRICAL PARTS

	Ref	Part No	Description		部品名	Remarks	ランク
*		NX004060	Circuit Board	M	Mシート	PSS-125	
*		NX004050	Circuit Board	PN	PNシート		
		VG756800	Circuit Board	MK	MKシート	14L F32-6K	
*		NX004060	Circuit Board	M	Mシート		
		XF853A00	IC	TA7368P	IC	P AMP 0.7W 1CH	03
		IG051100	IC	TC40H074P	IC	DFF	04
*		XG724B00	IC	HD6305V0***P	IC	CPU	07
		XF357A00	IC	YM3427	IC	GE12	07
		IA111510	Transistor	2SA1115 E,F	トランジスタ		03
		ID088000	Transistor	2SD880 O,Y	トランジスタ		03
		VE213100	Transistor	2SD1505 E,F	トランジスタ		01
		IF003450	Diode	1SS133	ダイオード		01
*		VH770800	Diode	1SR139-100T32	ダイオード		01
		IF008910	Zener Diode	MTZ6.8B 6.8V	ツェナーダイオード		01
		IF010600	Zener Diode	MTZ3.9B 3.9V	ツェナーダイオード		01
		VH380800	Resistor Array	RGLD13X473J	抵抗アレイ		01
		VC694800	Semiconductive Cera. Cap.	0.1μ 25V Z	半導体セラコン		01
		VB835000	Coil	20μ FL5R200QNT	コイル		01
		VG913900	Ceramic Resonator	2.78M CST2.78MG	セラミック振動子		02
		VG893500	Slide Switch	SSM2X3MB4X12	スライドスイッチ	POWER/MODE	03
		VC664500	Connector	HEC2305	電源コネクタ		01
*		NX004050	Circuit Board	PN	PNシート		
		VG756800	Circuit Board	MK	MKシート	14L F32-6K	
		IF003450	Diode	1SS133	ダイオード		01
		VD851400	Diode	HSS104TA	ダイオード		01
*		XG747A00	Speaker	7.7cm 4Ω 2W	スピーカー	with SP cloth	04
		EI030066	Bind Head Tapping Screw	3.0X 6 ZMC2Y	ﾊﾞｲﾝﾄﾞﾀｯﾋﾟﾝｸﾞﾈｼﾞ	Tr 1	01

*:New Parts （新規部品）

ランク:Japan Only