



PORTABLE KEYBOARD

PS-10

SERVICE MANUAL

YAMAHA

PORTABLE KEYBOARD

PS-10



SERVICE MANUAL

CONTENTS

SPECIFICATIONS

SPECIFICATIONS	RATED VOLTAGE DC 8V, Batteries (8UM-1, "D", size R20 or E90)	KEYBOARD A4 key (F# → C#)
PANEL LAYOUT	AC power adapter (optional) 1W (with AC power adapter)	ORGESTRA TONES PIANO
UNIT LAYOUT	Main Unit: ABG tuner	STRINGS HARPSICORD
DISASSEMBLY PROCEDURE	DIMENSIONS Width: 35.3 cm (13.9") - 38.4 cm (15.1") Depth: 28.0 cm (11.1") - 29.5 cm (11.6") Height: 8.5 cm (3.3") - 10.1 cm (4.0") Note: 18 degrees	EFFECT SWING
Wiring Table & Notes	Wiring notes	AUTO RHYTHM SECTION RHYTHM SELECTORS
PS-10 Circuit Board	PS-10 circuit board notes	WALLS LATIN
PS-10 Circuit Board	PS-10 circuit board notes	RHYTHM SYNCRO START LEVEL VOLUME
LSI Data Table	LSI data table notes	TEMPO FADER
Wave Shape Figures	Wave shape figures notes	AUTO BASE CHORD SECTION SIMPLE FINGERED CHORD
Parts List	Parts list notes	VOLUME POWER switch PILOT LIGHT MASTER VOLUME
	ACCESSORIES BATTERIES AC POWER ADAPTER	AUXILIARY TERMINALS HEADPHONES AUX-OUT (SOCKU) AUX-IN (SOCKU) EX-PEDET DC BA IN
	MUSIC REST	MAIN AMPLIFIER SWEAKE
	BUTT DODER	DM (H.W.S) (at impedance)
		15 cm (6") x 8 cm (3") (45)

The maximum number of notes which can be simultaneously sounded at this instrument is shown below.

- * Monophony 8 notes (Melody)
- * Dual-note ABC baseline 4
- Widely Notes 3
- Group Notes 1
- Bar Note 1

SPECIFICATIONS

CONTENTS

KEYBOARD

44 keys (F₁ ~ C₅)

ORCHESTRA TONES

ORGAN	PIANO
STRING	HARPSICHORD
CLARINET	VIBraphone

EFFECT

SUSTAIN

AUTO RHYTHM SECTION

RHYTHM SELECTORS

WALTZ	ROCK
SWING	LATIN

RHYTHM CONTROLS

RHYTHM SYNCHRO START, TEMPO,
VOLUME

TEMPO LIGHT

AUTO BASS CHORD SECTION

SINGLE FINGERD CHORD
VOLUME

OTHER CONTROLS AND INDICATORS

POWER Switch

Pilot Light

MASTER VOLUME

AUXILIARY TERMINALS

HEADPHONES

AUX-OUT (600Ω)

AUX-IN (30kΩ)

EXP. PEDAL

DC 9V IN

MAIN AMPLIFIER

5W (R.M.S) (4Ω impedance)

SPEAKER

12 cm (5") x 8 cm (3") (4Ω)

RATED VOLTAGE

DC 9V: Batteries (SUM-1, "D" size, R20 or EQU)

AC power adaptor

Car Battery adaptor (option)

POWER CONSUMPTION

11W (with AC power adaptor)

EXTERIOR

Main Unit: ABS resin

Finish: Polyurethane coating

DIMENSIONS

Width : 77.2 cm (30-1/2")

Depth : 29.3 cm (11-1/2") - 33.4 cm [12-3/4"] -

Height : 9.2 cm (3-1/2") - 25.1 cm [10"] -

* - [] - indicates the dimensions when the music rest is attached.

WEIGHT

5.4 kg (11 lbs. 14 oz)

* This weight does not include the weight of the dry-cell batteries.

Specifications subject to change without notice.

ACCESSORIES

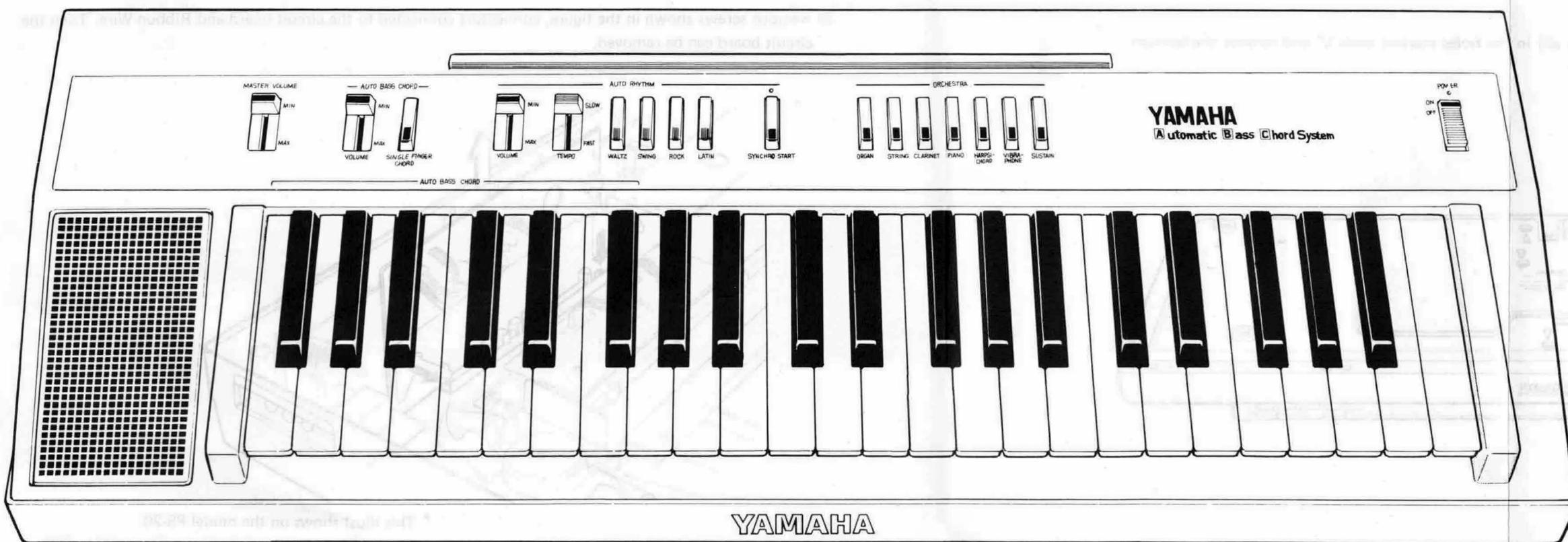
DUST COVER BATTERY PACK

MUSIC REST AC POWER ADAPTOR

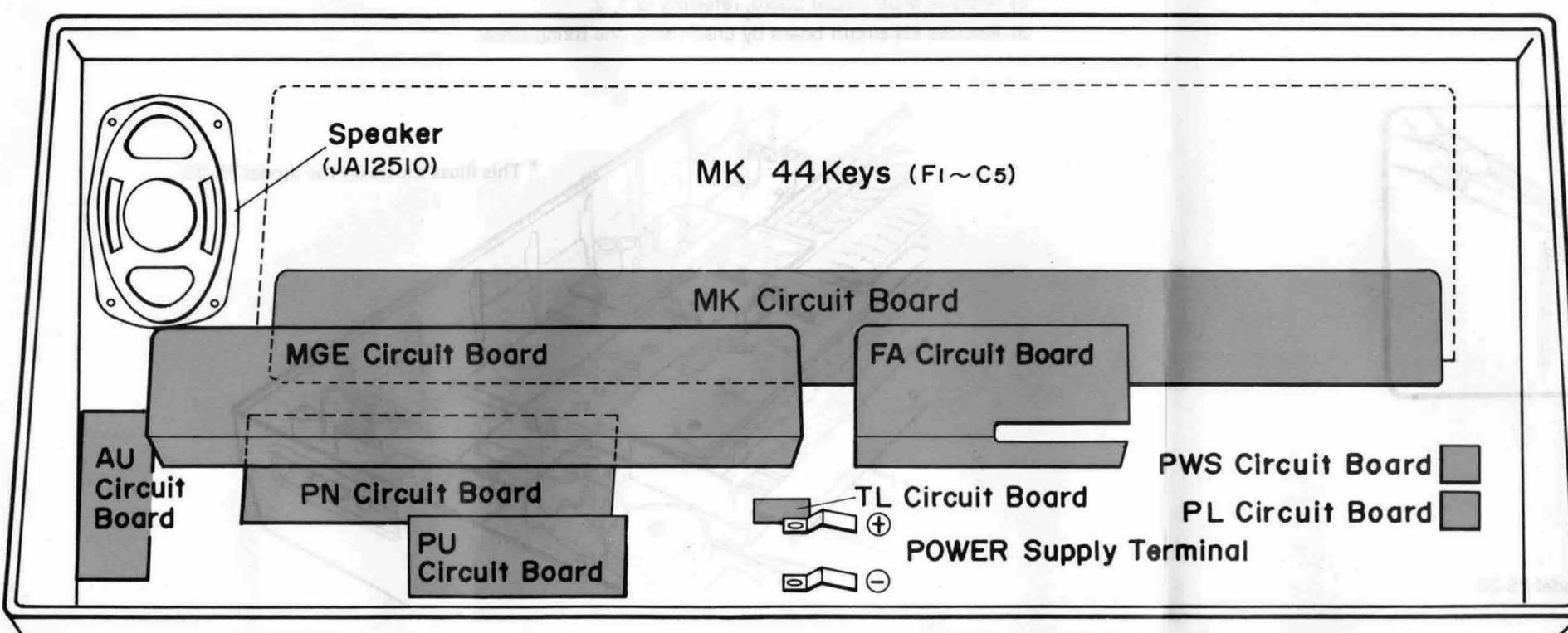
The maximum number of notes which can be simultaneously sounded on this instrument is shown below.

- * Normally 8 notes (Melody)
- * During ABC playing
 - Melody notes 4
 - Chord notes 3
 - Bass note 1

PANEL LAYOUT



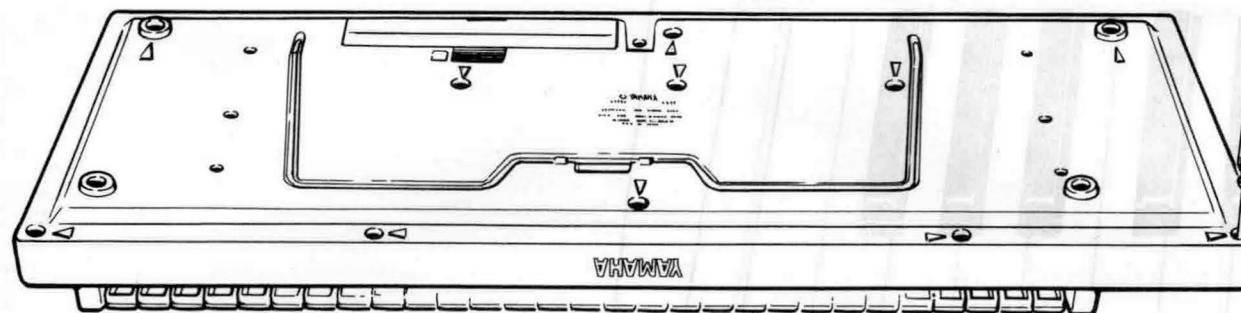
UNIT LAYOUT (Bottom View)



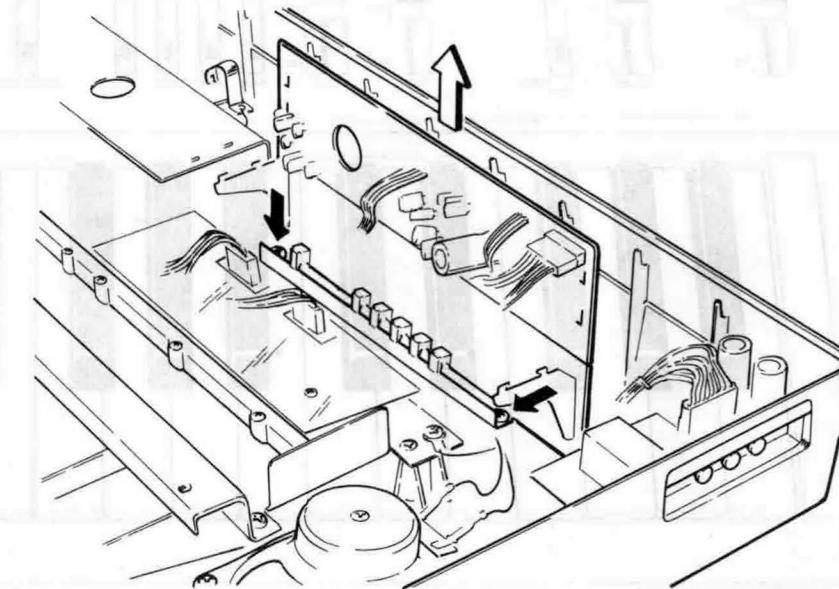
DISASSEMBLY PROCEDURE

1. Removal of bottom case

Turn over the unit, unscrew the fixing screws (11 in all) in the holes marked with ∇ and remove the bottom case by pulling its four sides gradually.



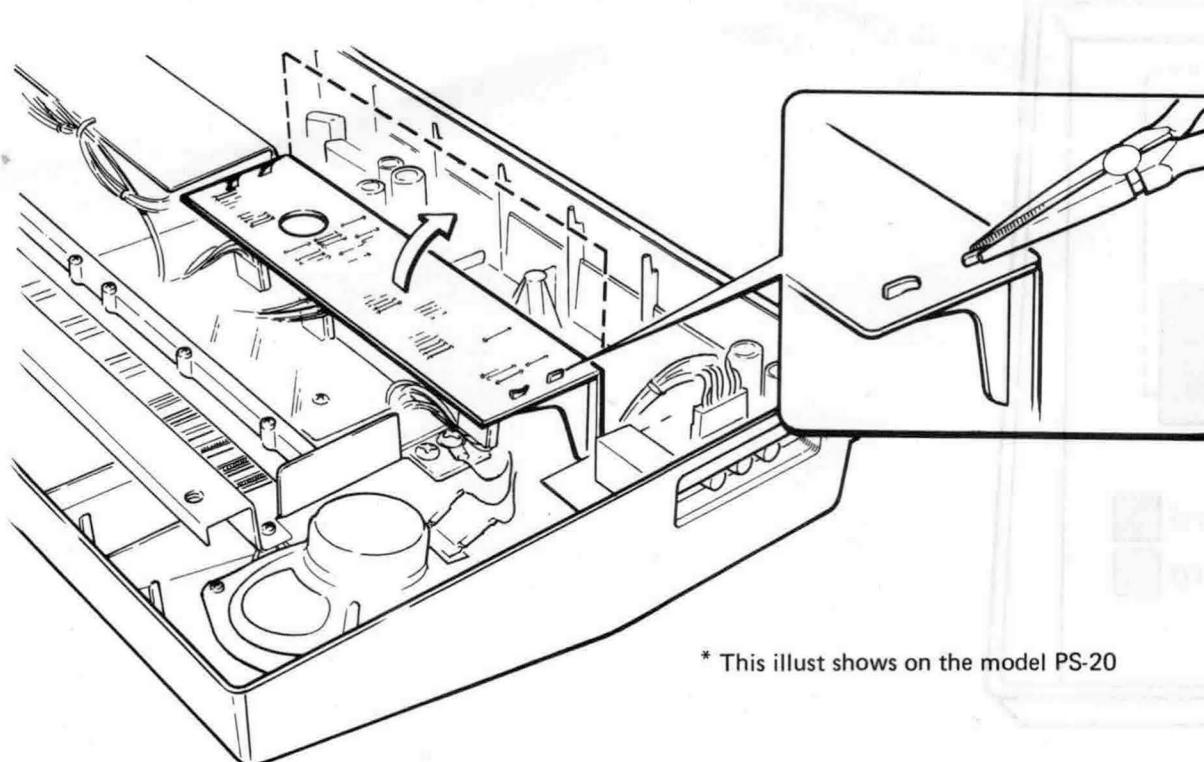
- 2) Remove screws shown in the figure, connectors connected to the circuit board and Ribbon Wire. Then the circuit board can be removed.



* This illust shows on the model PS-20

2. Removal of MGE & FA circuit boards

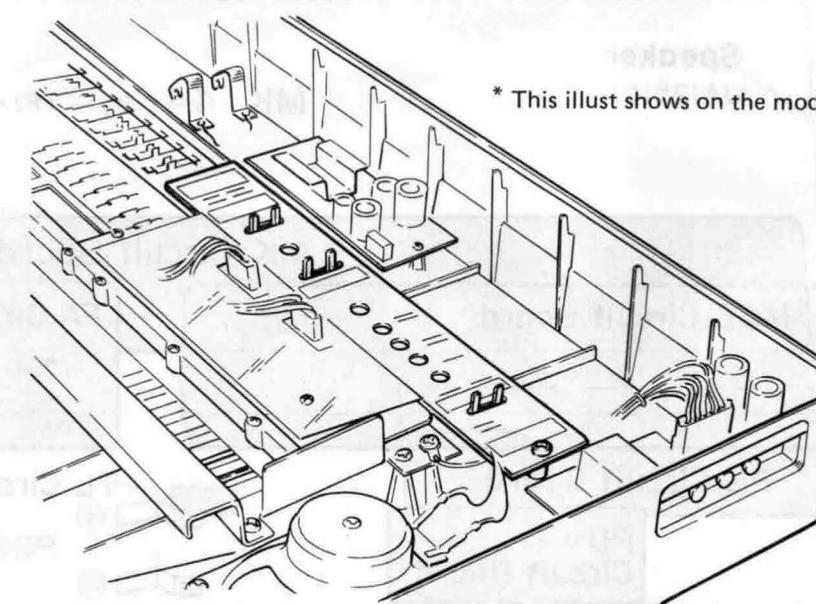
- 1) Straighten fastening plates fixing the circuit board with a Longnose pliers and raise the circuit board gently.



* This illust shows on the model PS-20

3. Removal of PN circuit board

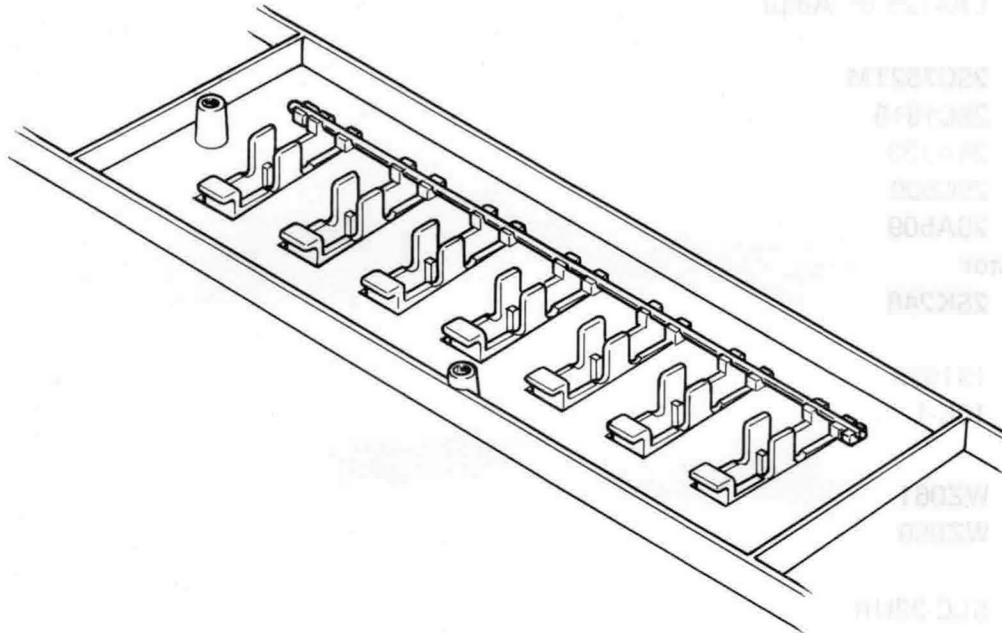
- 1) Remove slide volume knobs on the panel.
- 2) Remove MGE circuit board, referring to 1, 2.
- 3) Remove PN circuit board by unscrewing one fixing screw.



* This illust shows on the model PS-20

4. Removal of switches

- 1) Remove each circuit board referring to the removal instruction for each circuit board.
- 2) Push the shaft of switches with fingers from the front panel side, and the shaft will come off the bearings.
- 3) Each switch can be removed from the shaft easily.
- 4) When reinstalling them, fit the switches onto the shaft from the back side of the panel, place the shaft on the bearings and push its both ends until locked.

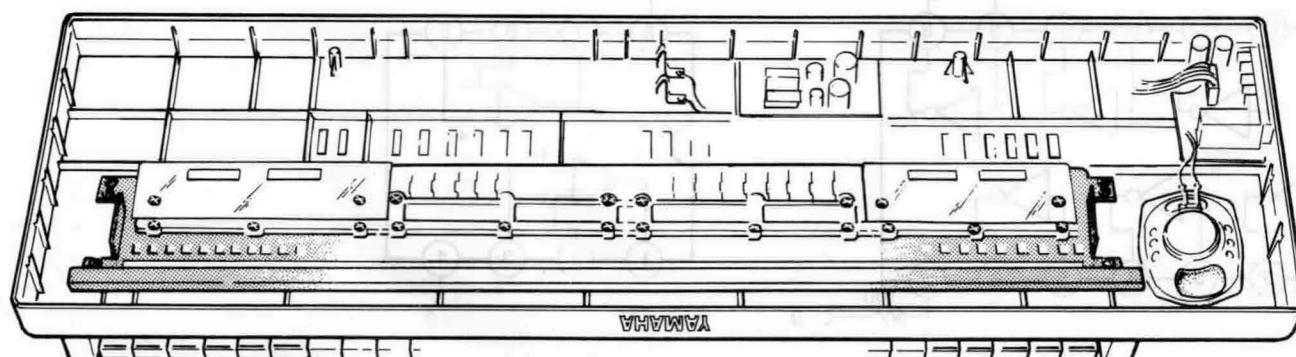


5. Removal of MK circuit board

- 1) Follow step 1) of 2 to raise each circuit board.
- 2) Remove the fixing screws (20 in all) and connectors connected to MK circuit board, and MK circuit board can be removed.

6. Removal of keyboard

- 1) Remove the entire keyboard by unscrewing six fixing screws.



7. Removing Keyboard

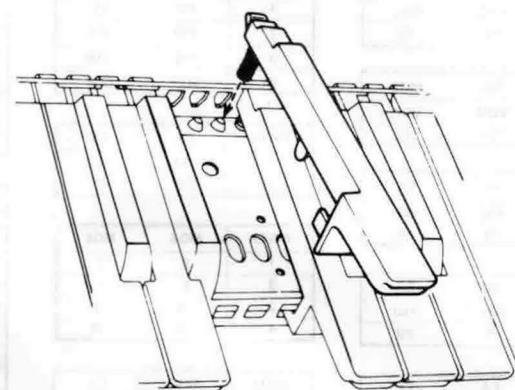
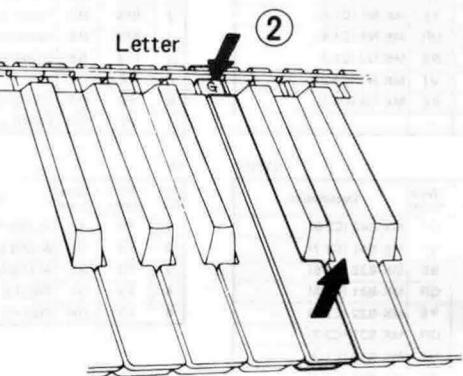
- 1) Remove bottom case.
- 2) Remove MK fastening screws securing keyboard.
- 3) Raise the keyboard, and remove connectors.
- 4) Remove keyboard up.

8. Removing Keys

- 1) Remove white keys first, then black keys, making sure to mark their order.
- 2) Push the key down in the direction of arrow at the point marked with the letter as shown in the figure to release the key hook from its fulcrum.
- 3) Remove your finger from the key and then withdraw the key making sure not to lose the spring.

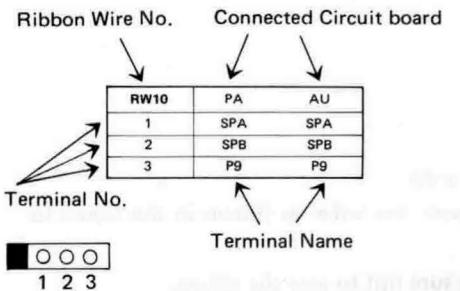
Installation Precautions

Insert the spring over the round peg as shown in the figure and push the key down so that the hook falls over the fulcrum. Install black keys before installing white keys.



WIRING TABLE & NOTES

● How to Read Wiring Table



● Wiring Table of Ribbon Wire

RW1	PN	AU
1	EXO	EXO
2	P9	P9
RW2	PN	MGE
1	VDD	VDD
2	TCL	TCL
RW3	PN	PA
1	MO	MI
2	P9	P9
RW4	AU	PA
1	AUI	AUI
2	P9	P9
RW5	FA	PL
1	PL	PL
2	PL	PL
RW6	MGE	FA
1	VI	VI
2	VG	VG
RW7	MGE	TL
1	VDD	VDD
2	TL	TL
RW8	MGE	PN
1	RO	RI
2	A0	AI
RW9	MGE	FA
1	-4.5	-4.5
2	8'	8'
3	4' + 8'	4' + 8'
RW10	PA	AU
1	SPA	SPA
2	SPB	SPB
3	P9	P9
RW18	PL	↔ PWS
1	PSE	PSE
2	PSE	PSE

● Connector Table

C1	[MGE]		
	Pin No.	Pin Name	Wire Color
	1	N5	GR
	2	N4	YE
	3	N3	OR
	4	N2	RE
	5	N7	VI
	6	N6	BE
	7	-	-

C4	[PWS]		
	Pin No.	Pin Name	Wire Color
	1	PSE	BE
	2	BPE	RE
	3	BPE	RE
	4	BPE	RE
	5	PE	-
	6	PE	OR
	7	PE	OR

C2	[MGE]		
	Pin No.	Pin Name	Wire Color
	1	B42	GY
	2	B41	VI
	3	B32	BE
	4	B31	GR
	5	B22	YE
	6	B21	OR
	7	B12	RE
	8	B11	BR

C5	[PA]		
	Pin No.	Pin Name	Wire Color
	1	P9	BE
	2	P9	BE
	3	P9	BE
	4	PE	OR
	5	PE	OR

C3	[AU]		
	Pin No.	Pin Name	Wire Color
	1	BPE	RE
	2	BPE	RE
	3	P9	BE
	4	P9	BE
	5	P9	BE
	6	PSE	PWS-PSE (C4-1)
	7	BP9	BE
	8	BP9	BE
	9	PS1	VI
	10	PS2	YE

Notes)

1. Integrated Circuit

IC1	:	YM1104 (GE2)
IC2	:	TC4069 (INV.)
IC3, 4, 5, 7, 8	:	NJM4558 (OP. Amp)
IC6	:	iG2602 (VCA)
IC9	:	LA4125 (P. Amp)

2. Transistor

Tr1	:	2SC752TM
Tr2 ~ 5, 17, 20	:	2SC1815
Tr6 ~ 16, 18, 19	:	2SA733
Tr21	:	2SC509
Tr22	:	2SA509

3. Field Effect Transistor

FET1 ~ 4	:	2SK246
----------	---	--------

4. Diode

D1 ~ 13, 16 ~ 59:	1S1555
D14	: 10E-1

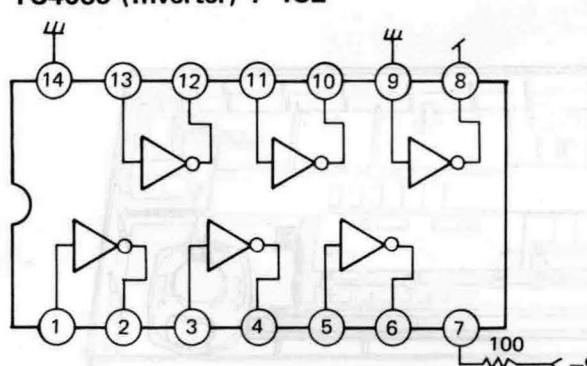
5. Zener Diode

ZD1	:	WZ061
ZD2	:	WZ056

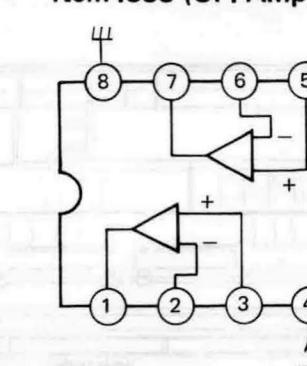
6. LED

LED1, 2	:	SLC-22UR
---------	---	----------

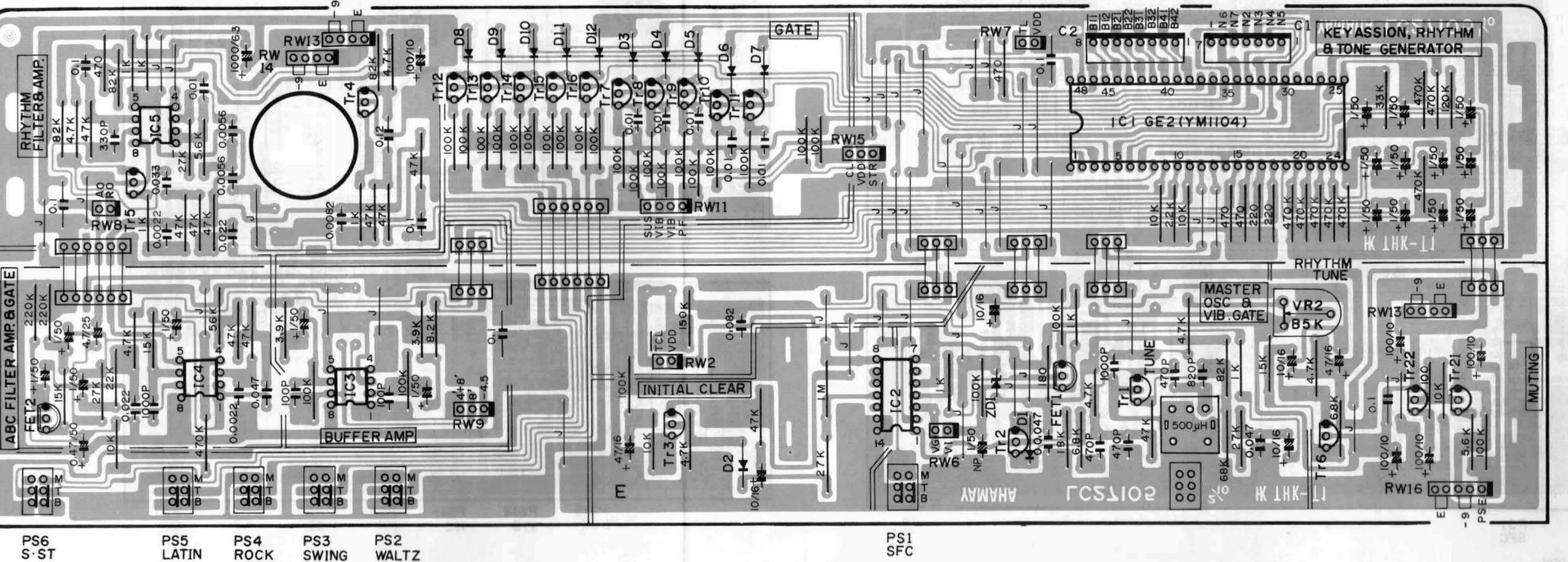
TC4069 (Inverter) : IC2



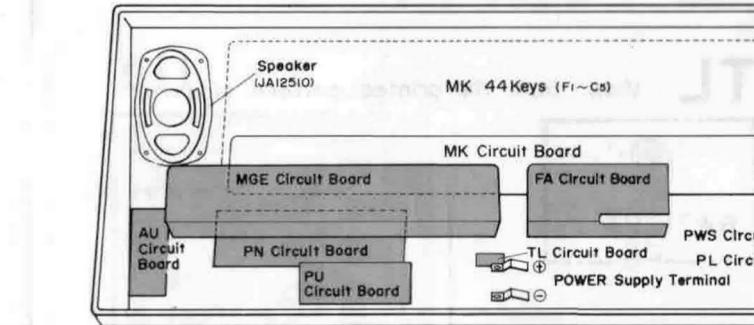
NJM4558 (OP. Amp) : IC3, 4, 5, 7, 8



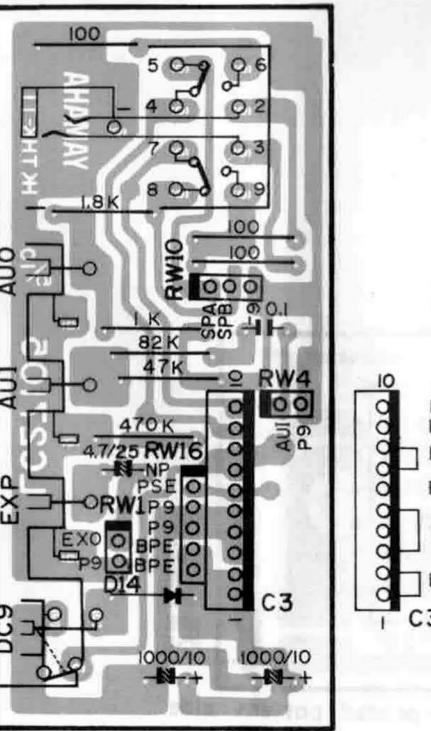
**S-10 CIRCUIT BOARD (S/# 3151 ~)
MGE**



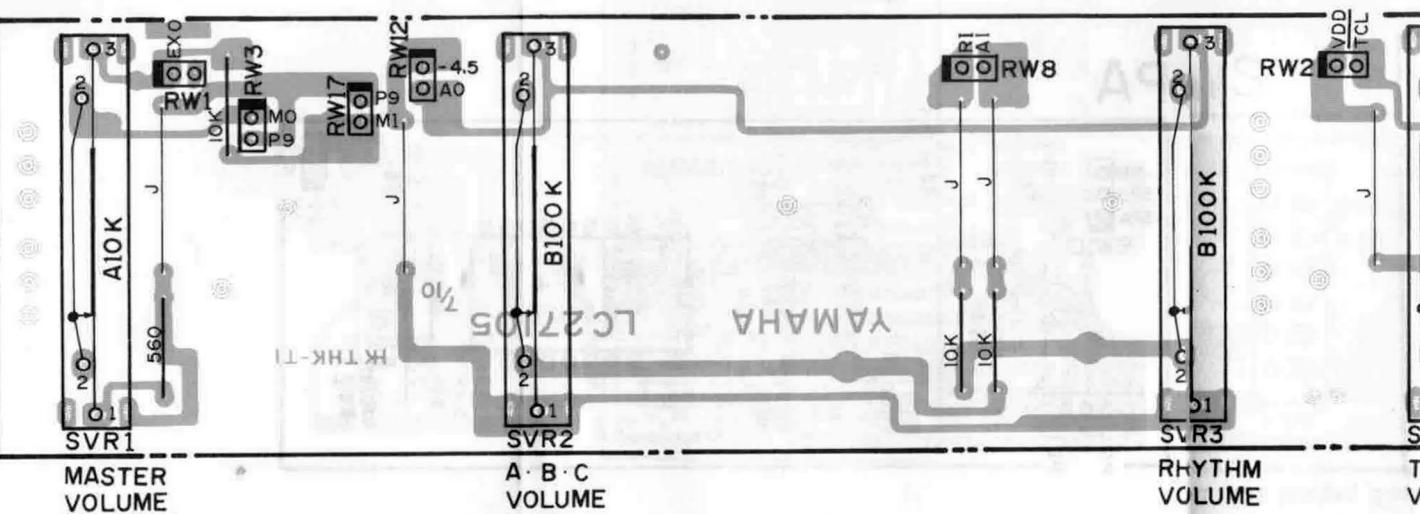
UNIT L



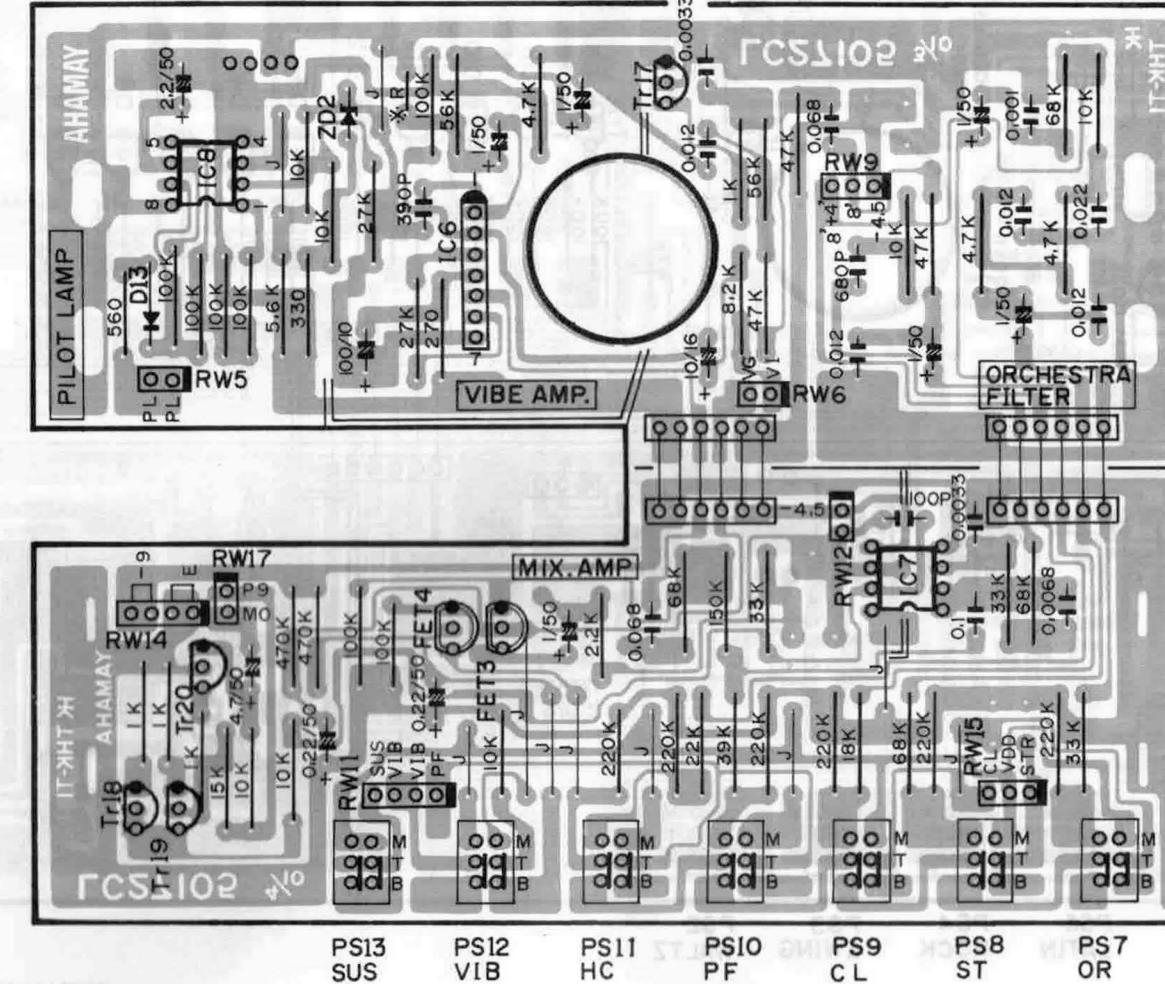
U



PN View from the printed patter

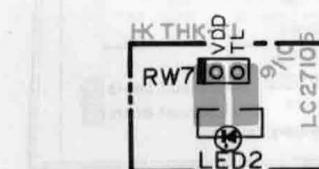


FA

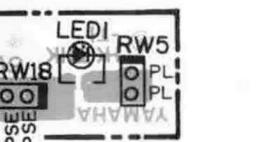


Gain Rank of IC6 (iG2602)	R
K	1.5 K
L	3.3 K
M	27 K

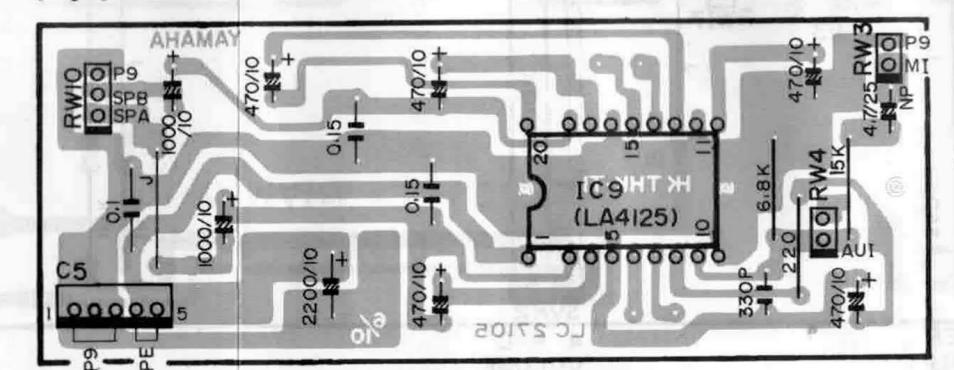
TL View from the printed pattern side



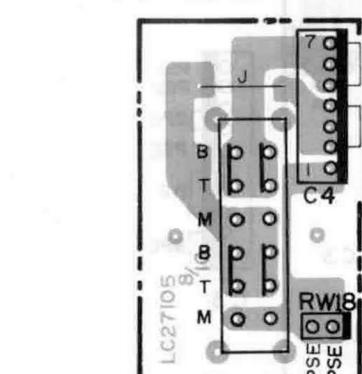
L View from the printed pattern side



PA

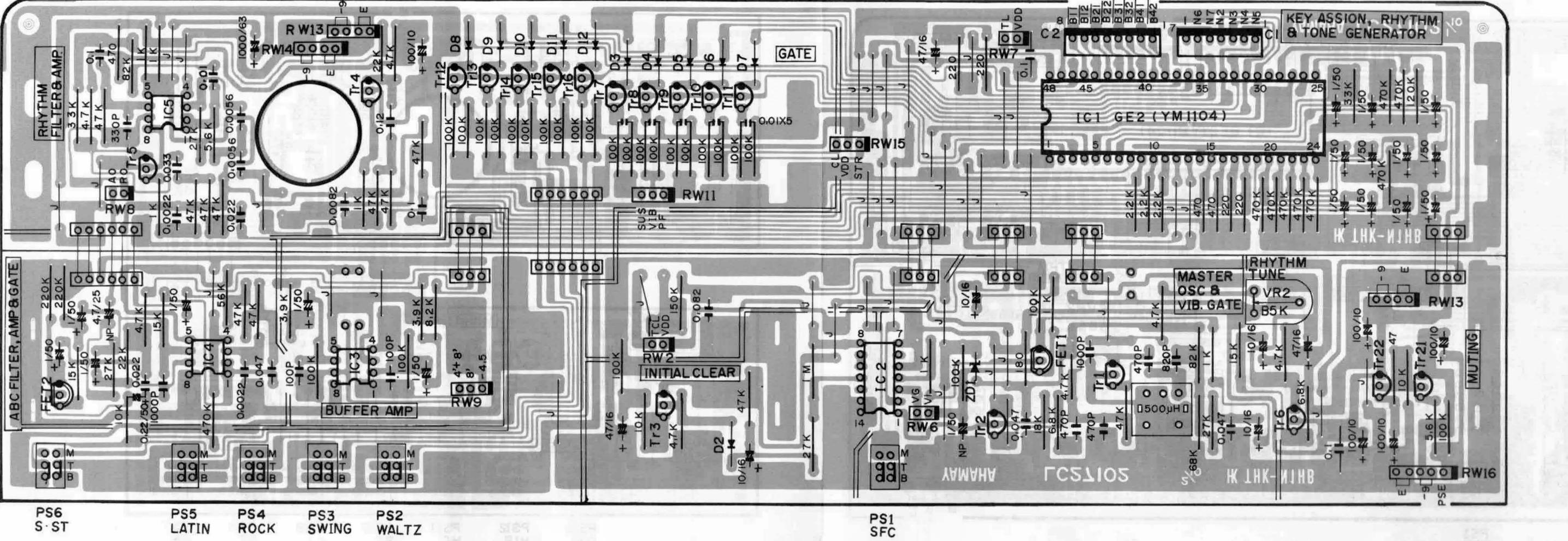


PWS



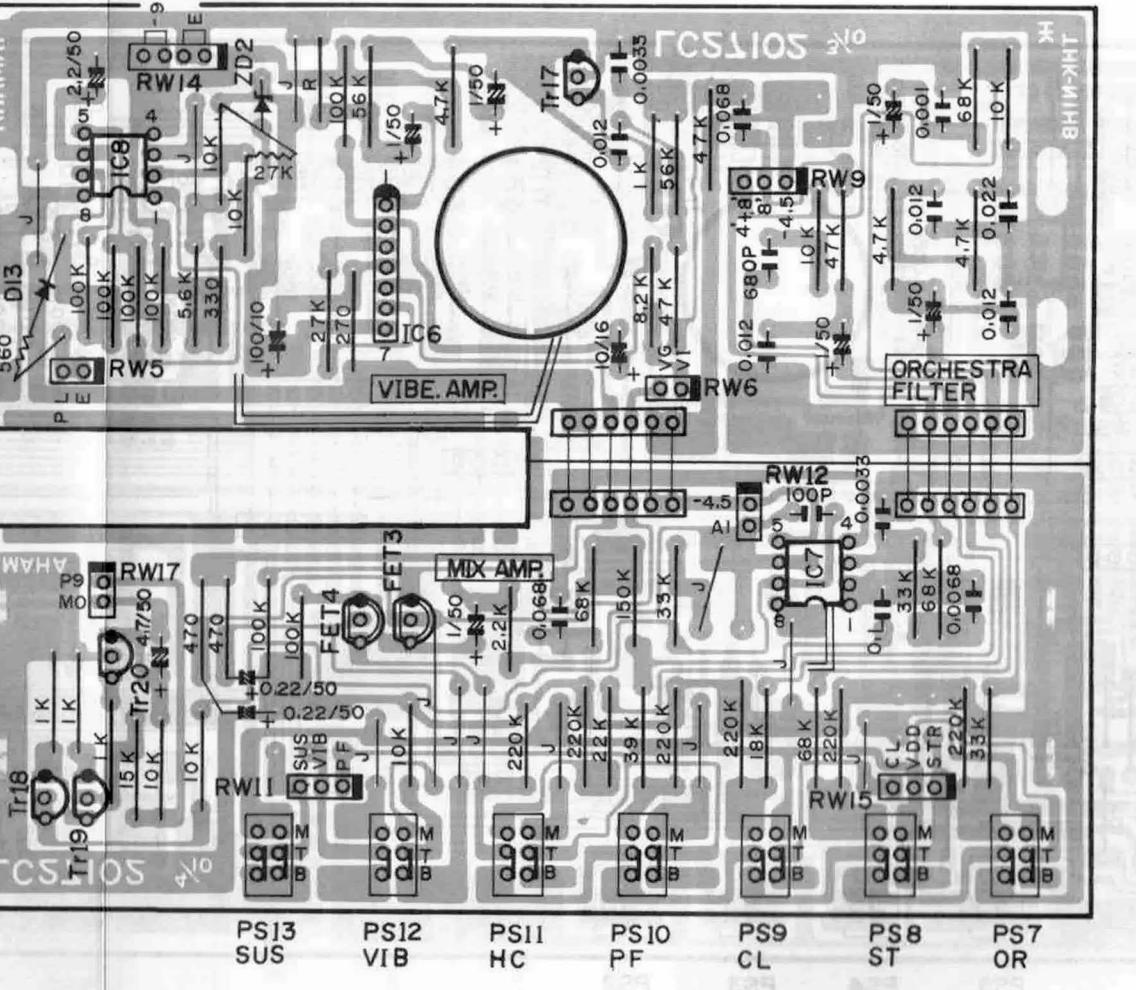
view from the printed pattern side

MGE

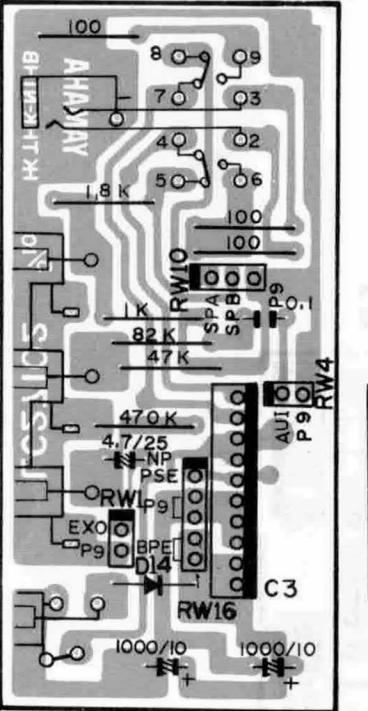


LAYOUT (Bottom View)

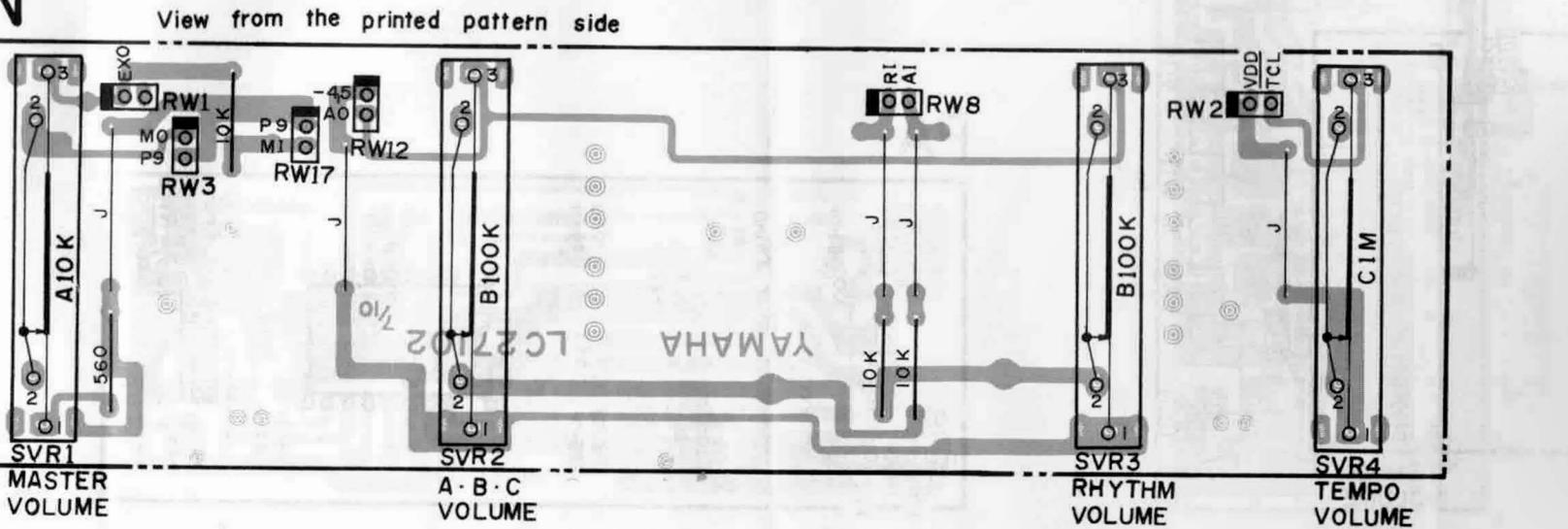
A



AU

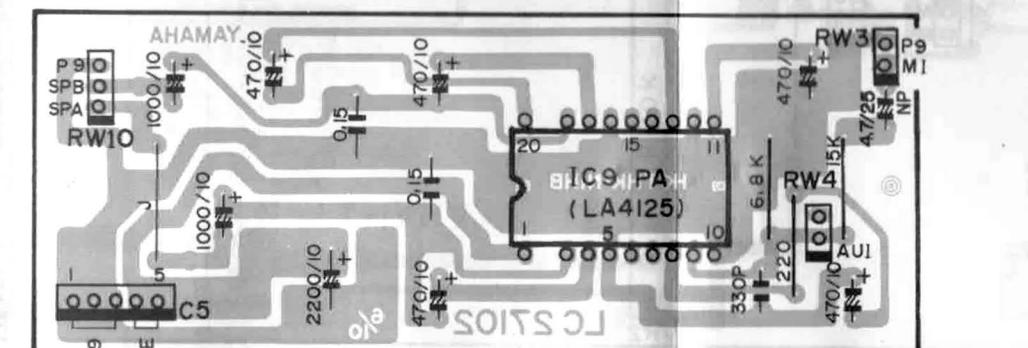


1

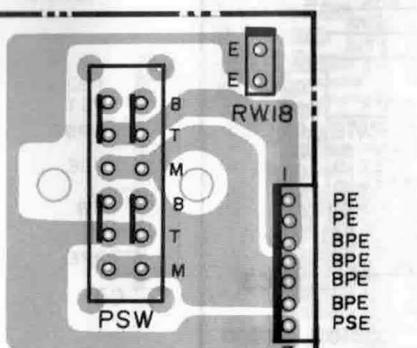


/iew from the printed pattern side

PA



PWS



from the printed pattern side

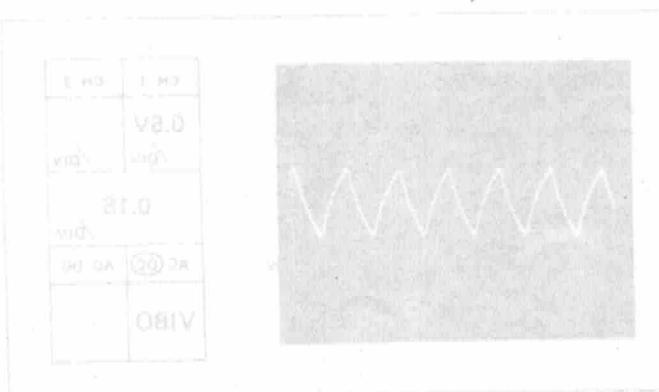
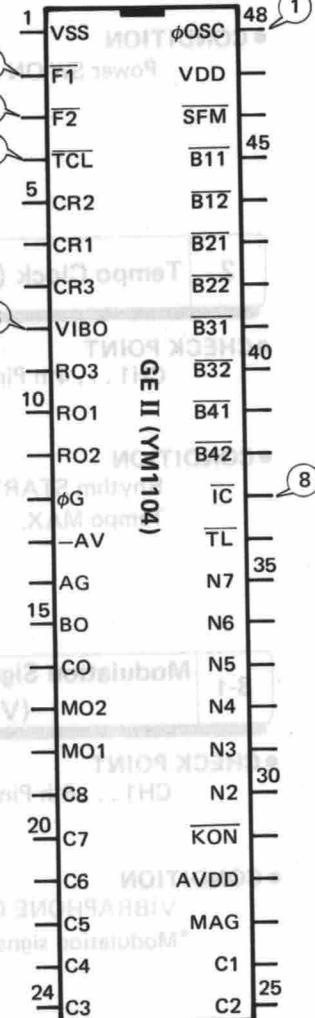
LSI DATA TABLE

WAVE SHAPE FIGURES

Part Name	YM1104	Function Name	GE II (Generator 2)
-----------	--------	---------------	---------------------

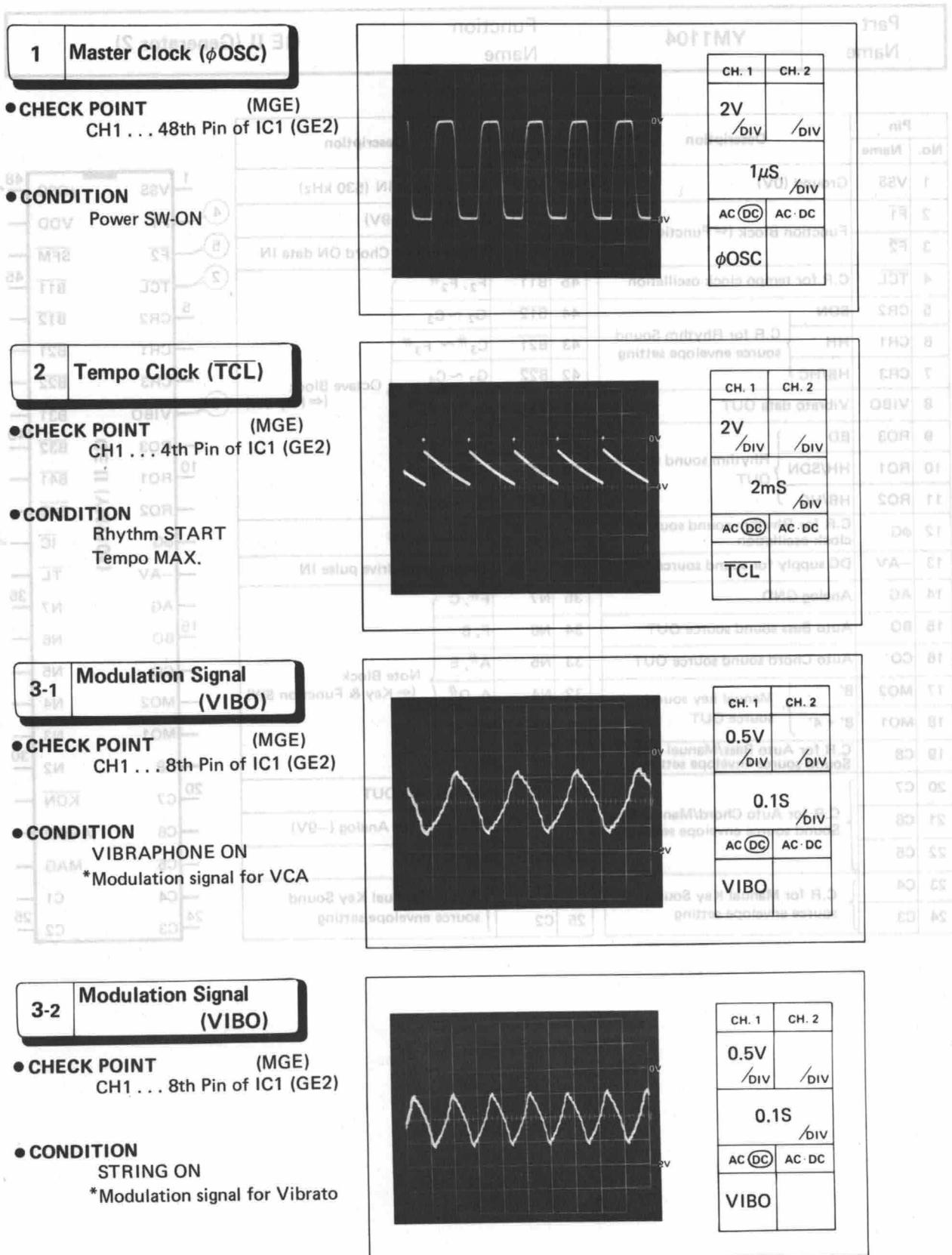
No.	Pin Name	Description
1	VSS	Ground (0V)
2	F1	Function Block (\leftarrow Function SW)
3	F2	
4	TCL	C.R for tempo clock oscillation
5	CR2	SDN
6	CR1	HH
7	CR3	HB/HC
8	VIBO	Vibrato data OUT
9	RO3	BD
10	RO1	HH/SDN
11	RO2	HB/HC
12	ϕG	C.R for Rhythm sound source clock oscillation
13	-AV	DC supply for sound source (-2V)
14	AG	Analog GND
15	BO	Auto Bass sound source OUT
16	CO	Auto Chord sound source OUT
17	MO2	8'
18	MO1	8' + 4'
19	C8	C.R for Auto Bass/Manual Key Sound source envelope setting
20	C7	
21	C6	C.R for Auto Chord/Manual Key Sound source envelope setting
22	C5	
23	C4	C.R for Manual Key Sound source envelope setting
24	C3	

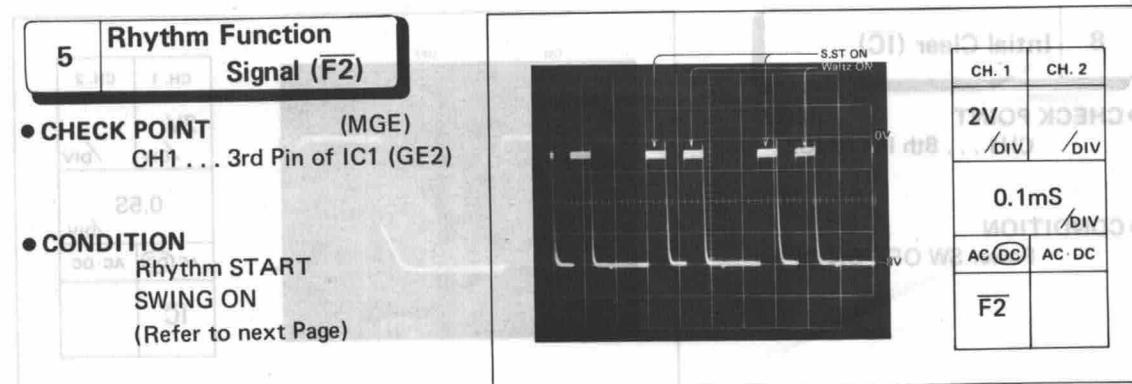
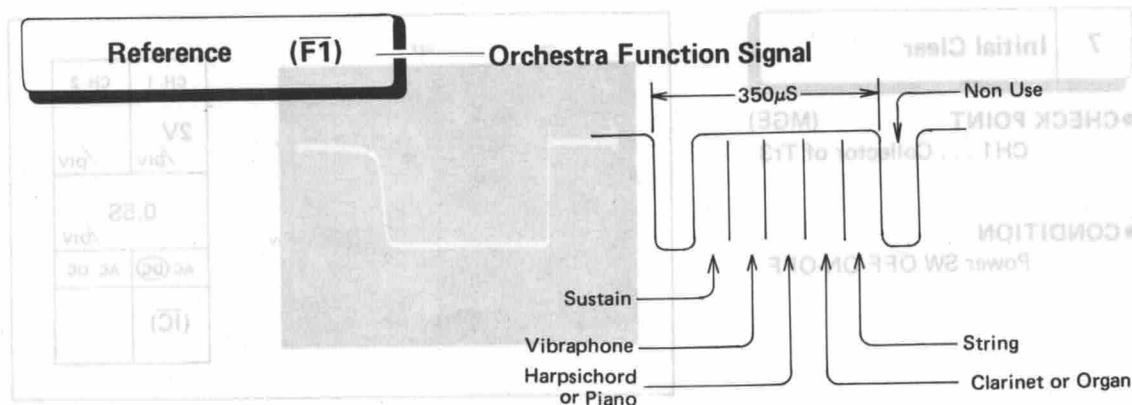
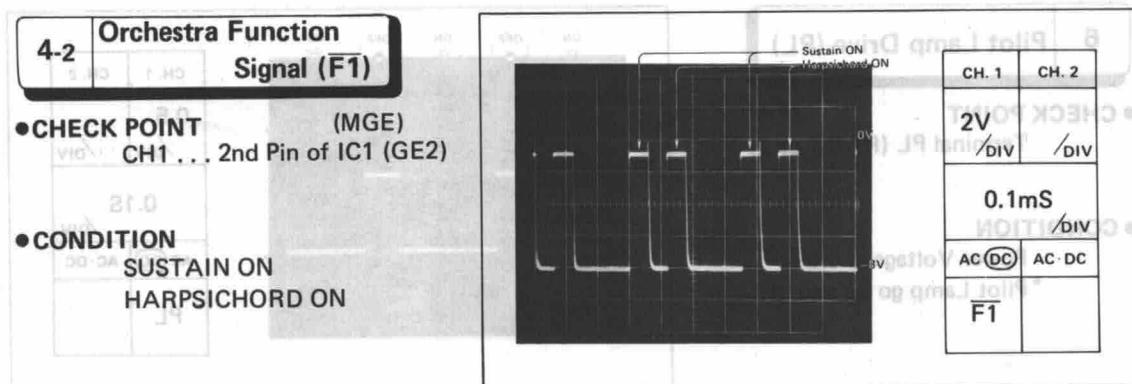
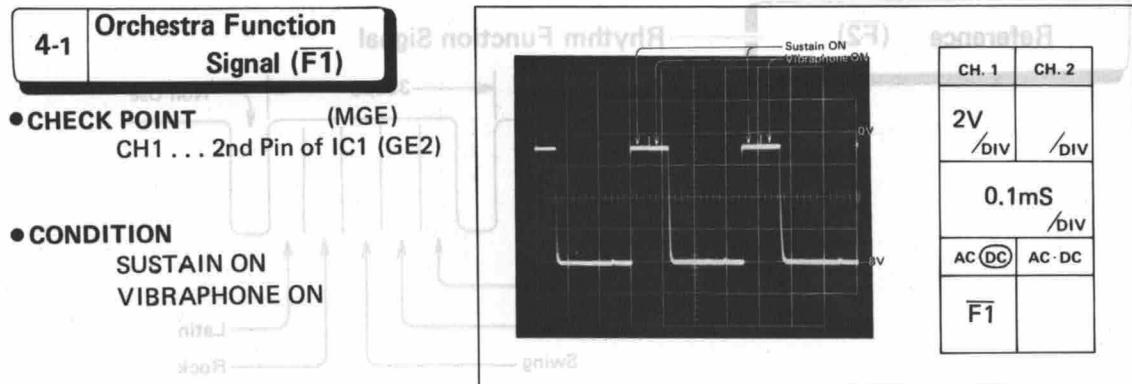
No.	Pin Name	Description
48	ϕ OSC	Master clock IN (530 kHz)
47	VDD	DC supply (-9V)
46	SFM	Single Finger Chord ON data IN
45	B11	$F_2, F_2^{\#}$
44	B12	$G_2 \sim C_3$
43	B21	$C_3^{\#} \sim F_3^{\#}$
42	B22	$G_3 \sim C_4$
41	B31	$C_4^{\#} \sim F_4^{\#}$
40	B32	$G_4 \sim C_5$
39	B41	$C_5^{\#} \sim F_5^{\#}$
38	B42	$G_5 \sim C_6$
37	IC	Initial clear IN
36	TL	Tempo lamp drive pulse IN
35	N7	$F^{\#}, C$
34	N6	F, B
33	N5	$A^{\#}, E$
32	N4	$A, D^{\#}$
31	N3	$G^{\#}, D$
30	N2	$G, C^{\#}$
29	KON	Key ON data OUT
28	AVDD	DC supply for Analog (-9V)
27	MAG	Analog GND
26	C1	C.R for Manual Key Sound source envelope setting
25	C2	

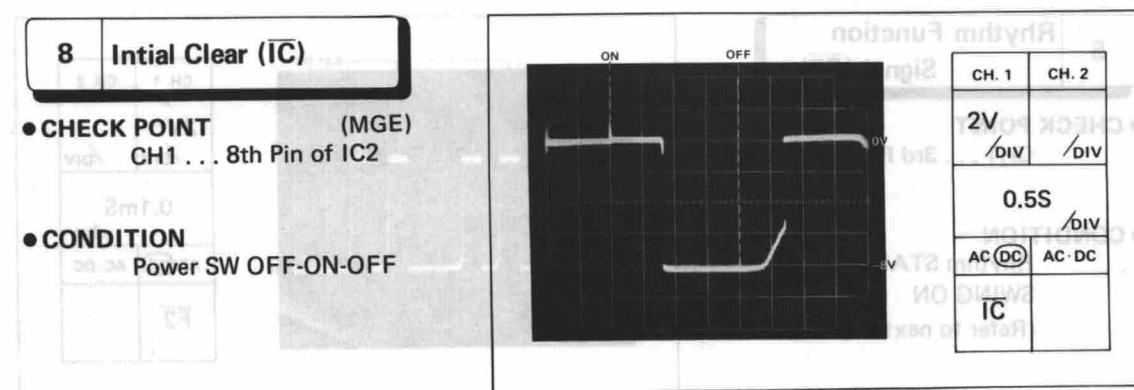
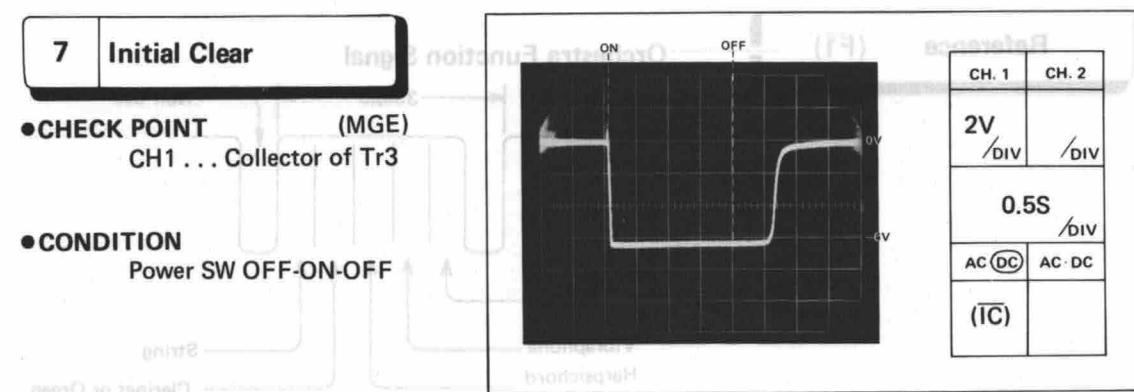
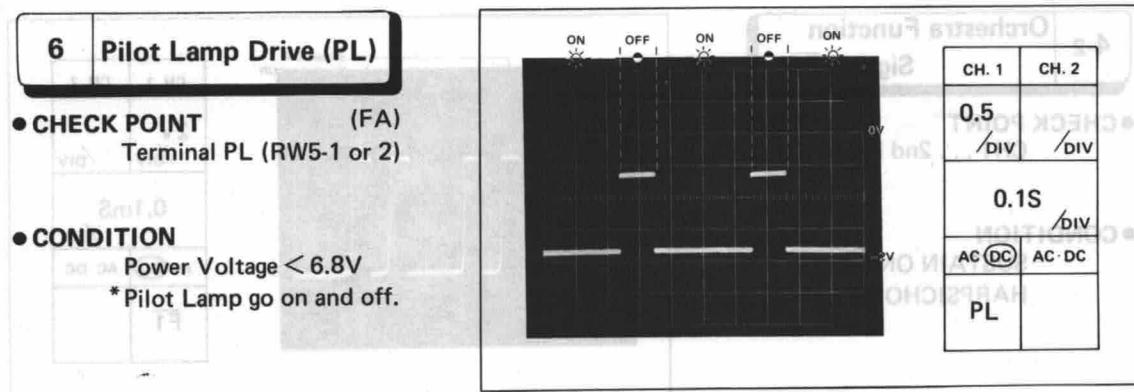
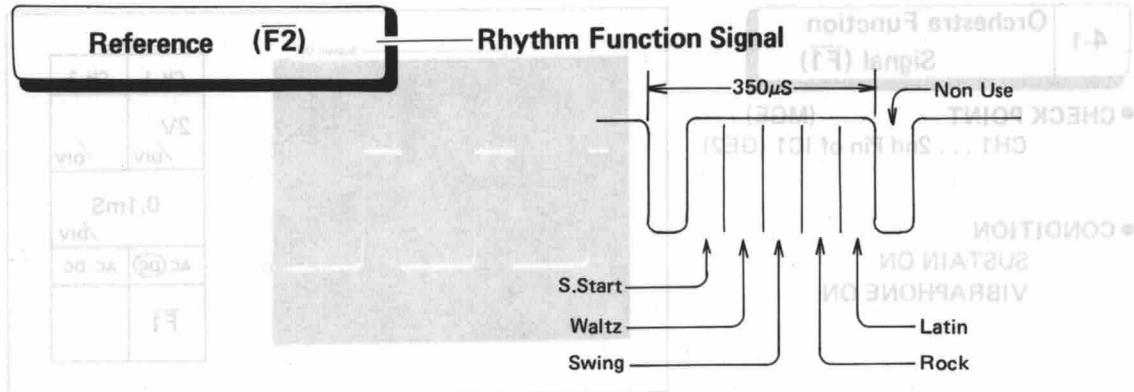


WAVE SHAPE FIGURES

LSI DATA TABLE







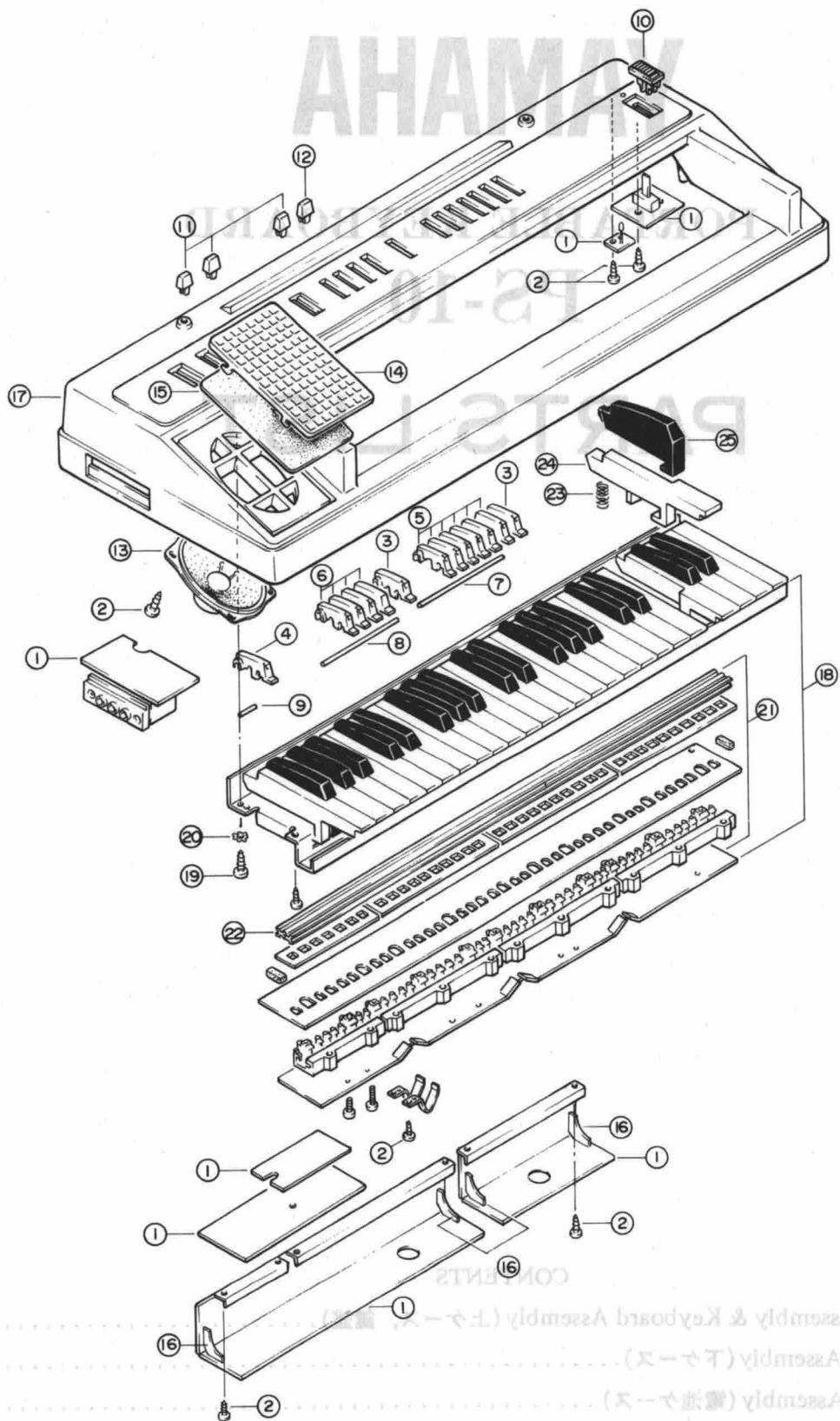
(並装) ヤマハ PS-10 キーボードアセンブリ (Keyboard Assembly)



CONTENTS

A. Upper Case Assembly & Keyboard Assembly (上ケース, 鍵盤)	2
B. Bottom Case Assembly (下ケース)	4
C. Battery Case Assembly (電池ケース)	5
D. Electronic Components (電気部品)	6

A. Upper Case Assembly & Keyboard Assembly (上ケース、鍵盤)



Ref. No.	Part No.		Description			(部品名)	Remarks	Common model	Markets
			Upper Case Assembly						
1	30 10 07	NB 10 07 20	M02 Circuit Board Assembly			M O 2 シート Ass'y			
2	40 10 00	EJ 03 00 80	Pan Head Tapping Screw 3 x 8			ナベタッピングネジ	Yellow		
3	30 10 00	CB 03 68 70	Knob, Push	DARK BROWN	ツ マ ミ		SYNCHRO START SUSTAIN		
4	30 10 00	CB 03 68 90	- do. -	BLUE	ツ マ ミ	"	SINGLE FINGER CHORD		
5	30 10 00	CB 03 69 00	- do. -	GREEN	ツ マ ミ	"	ORCHESTRA		
6	30 10 00	CB 03 69 10	- do. -	YELLOW	ツ マ ミ	"	AUTO RHYTHM		
7	30 10 00	AA 04 90 00	Shaft	l = 115	シ ャ フ ト				
8	30 10 00	AA 04 90 10	- do. -	l = 105	シ ャ フ ト	"			
9	30 10 00	AA 04 90 40	- do. -	l = 30	シ ャ フ ト	"			
10	30 10 00	CB 03 83 50	Slide Switch Knob		スライドスイッチツマミ		Power SW.		
11	30 10 00	CB 03 69 30	Knob, Slide	DARK BROWN	ツ マ ミ		VOLUME		
12	30 10 00	CB 03 69 40	- do. -	YELLOW	ツ マ ミ	"	TEMPO		
13	40 10 00	JA 12 51 00	Speaker		スピーカ				
14	30 10 00	AA 04 90 60	Speaker Grille		スピーカグリル				
15	40 10 00	CA 01 22 10	Cloth		不織布				
	40 10 00	CB 06 92 50	Binding Tie	BK-1	インシュロックタイ				
16	30 10 00	AA 04 91 00	Stay		ステー				
17	30 10 05	NK 04 55 60	Upper Case		上ケース				
	Keyboard Assembly								
18	30 10 00	NB 10 06 70	Keyboard Assembly		鍵盤 Ass'y				
19	40 10 00	EJ 04 01 00	Pan Head Tapping Screw 4 x 10		ナベタッピングネジ	Yellow			
20	40 10 00	EV 42 00 40	Toothed Lock Washer	B4S	歯付座金	Yellow			
21	30 10 00	NB 10 06 90	Switch Unit		スイッチユニット				
22	40 10 00	CB 81 41 70	Rubber Contact		可動導電ゴム				
23	30 10 00	AA 04 37 20	Coil Spring		コイルスプリング				
24	30 10 00	CB 03 22 10	White Key	C,F	白鍵				
	30 10 00	CB 03 22 20	- do. -	D	黒鍵	"			
	30 10 00	CB 03 22 30	- do. -	E	黒鍵	"			
	30 10 00	CB 03 22 40	- do. -	G	黒鍵	"			
	30 10 00	CB 03 22 50	- do. -	A	黒鍵	"			
	30 10 00	CB 03 22 60	- do. -	C	黒鍵	"			
25	30 10 00	CB 03 22 70	Black Key		黒鍵				
	40 10 00	CC 02 17 40	Felt		フェルト				
	40 10 00	LB 60 24 90	Bass Post, Top Type	8P	トップ型ベースポスト				
	40 10 00	LB 60 29 40	- do. -	6P	6P	"			

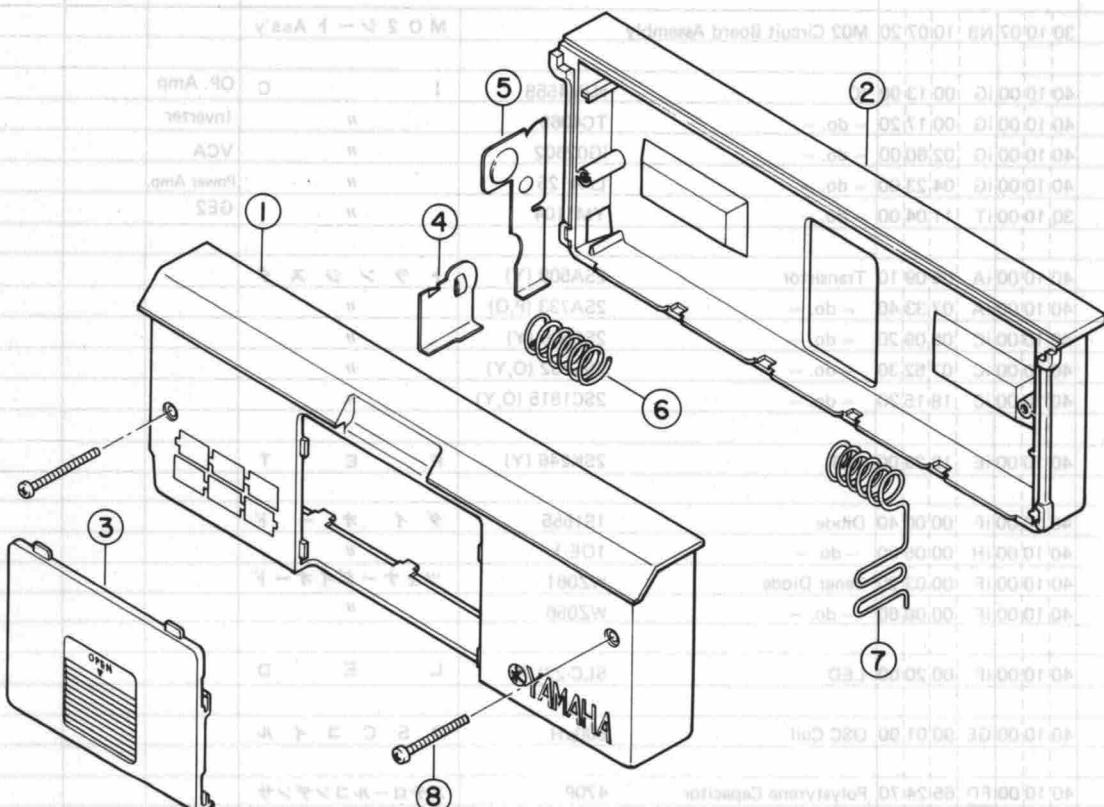
※ New Parts (新規部品)

B. Bottom Case Assembly (下ケース)

Ref. No.	Part No.	Description	(部品名)	Remarks	Common model	Markets
1	301000NB100760	Bottom Case Assembly	下ケース Ass'y			
*	2 301000AA049070	Stand Holder	脚取付金具			
*	3 401000EJ040100	Pan Head Tapping Screw 4 x 10	ナベタッピングネジ			
*	4 301000AA049080	Hook Stopper	ツメ押え板			
*	5 301000AA049090	Spring	バネ			
*	6 301000CB037030	Hook	ツメ			
*	3 401000EJ040100	Pan Head Tapping Screw 4 x 10	ナベタッピングネジ			
*	7 301000CB038000	Leg	ゴム脚			
*	8 301000AA048980	Music Rest	フメンワイヤー			

* New Parts (新規部品)

C. Battery Case Assembly (電池ケース)



* New Parts (新規部品)

D. Electronic Components (電気部品)

(逐一部品別表) Case Assembly

Ref. No.	Part No.	Description	(部品名)	Remarks	Common model	Markets
	30'10'07 NB 10'07'20	M02 Circuit Board Assembly	M O 2 シート Ass'y			
	40'10'00 iG 100'13'90	IC NJM4558	I C	OP. Amp		
	40'10'00 iG 100'17'20	- do. - TC4069	"	Inverter		
*	40'10'00 iG 102'60'00	- do. - iG02602	"	VCA		
	40'10'00 iG 104'23'00	- do. - LA4125	"	Power Amp.		
*	30'10'00 iT 111'04'00	- do. - YM1104	"	GE2		
	40'10'00 iA 105'09'10	Transistor 2SA509 (Y)	トランジスタ			
	40'10'00 iA 107'33'40	- do. - 2SA733 (P,Q)	"			
	40'10'00 iC 105'09'20	- do. - 2SC509 (Y)	"			
	40'10'00 iC 107'52'30	- do. - 2SC752 (O,Y)	"			
	40'10'00 iC 118'15'20	- do. - 2SC1815 (O,Y)	"			
	40'10'00 iE 110'26'00	FET 2SK246 (Y)	F E T			
	40'10'00 iF 100'00'40	Diode 1S1555	ダイオード			
	40'10'00 iH 100'05'90	- do. - 1OE-1	"			
	40'10'00 iF 100'03'20	Zener Diode WZ061	ツェナーダイオード			
	40'10'00 iF 100'08'60	- do. - WZ056	"			
	40'10'00 iF 100'20'00	LED SLC-22UR	L E D			
	40'10'00 GE 90'01'90	OSC Coil 500μH	O S C コイル			
	40'10'00 FD 65'24'70	Polystyrene Capacitor 470P	スチロールコンデンサ			
	40'10'00 FD 65'28'20	- do. - 820P	"			
*	40'10'00 HQ 160'02'10	Slide Variable Resistor A10K	スライドポリウム			
*	40'10'00 HQ 160'02'20	- do. - B100K	"			
*	40'10'00 HQ 160'02'40	- do. - C1M	"			
*	40'10'00 KA 140'08'50	Slide Switch	スライドスイッチ	Power Switch		
*	30'10'00 BA 01'43'80	Heat Sink	放熱板			
	40'10'00 LB 150'02'50	Bass Post, Top Type 5P	トップ型ベースポスト			
	40'10'00 LB 160'24'60	- do. - 7P	"			
	40'10'00 LB 160'24'90	- do. - 8P	"			
	40'10'00 LB 160'24'70	- do. - 10P	"			
*	40'10'00 LB 160'30'00	Bass Post, Bottom Type 7P	ボトム型ベースポスト			
	40'10'00 KA 180'20'70	Push Switch 1	プッシュスイッチ	A-B-C Switch		
	40'10'00 KA 180'20'80	- do. - 5	"	RHYTHM Switch		
	40'10'00 KA 180'20'90	- do. - 7	"	Orchestra Switch		
	40'10'00 LB 110'05'90	Terminal Plate	ジャック板			

* New Parts (新規部品)

PS-10 SERVICE MANUAL

1980年11月 初版

1981年10月 増刷

発行所 日本楽器製造株式会社
電音サービス課

版 下 中部電子印刷(株)

印 刷 中部電子印刷(株)

SINCE 1887



YAMAHA

NIPPON GAKKI CO., LTD. HAMAMATSU, JAPAN