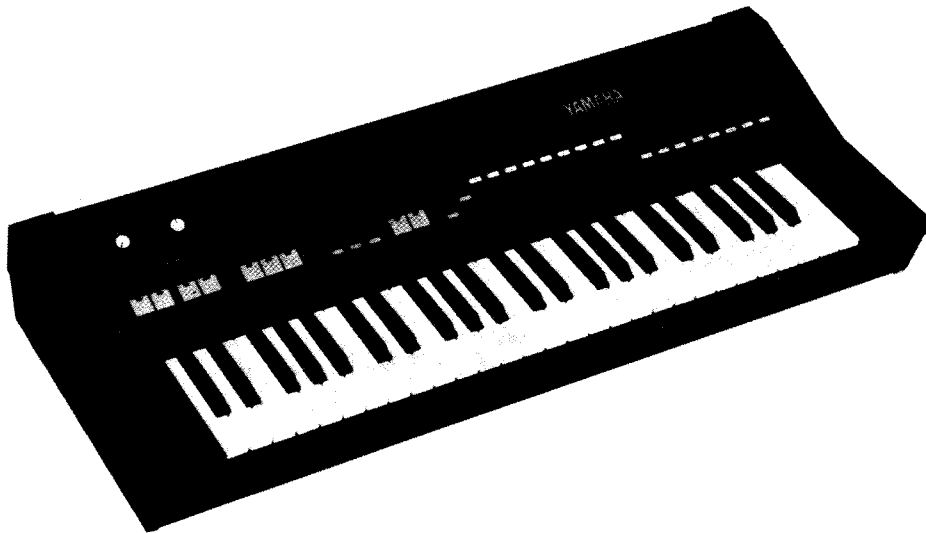


# **YAMAHA**

## **SYMPHONIC ENSEMBLE**

### **SK15**



## **SERVICE MANUAL**

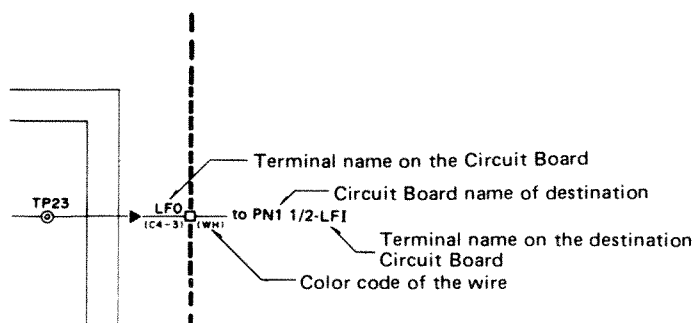


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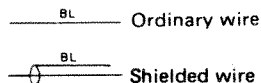
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# CODING GUIDE (活用の手引)

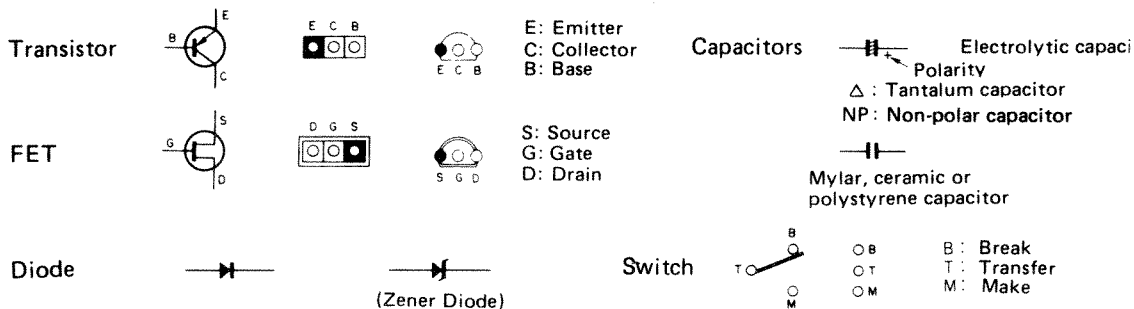
## 1 Wiring Notation



Note: Types of wire



## 2 Symbol Description



## 3 Abbreviations of Wire Color Codes

BLACK (クロ).....BL	BROWN (チャ).....BR	RED (アカ).....RE
ORANGE (タイ).....OR	YELLOW (キイ).....YE	GREEN (ミト).....GR
BLUE (アオ).....BE	VIOLET (ムラ).....VI	GRAY (ハイ).....GY
WHITE (シロ).....WH	GRASS GREEN (クサ).....GG	SKY BLUE (ソラ).....SB
PINK (モモ).....PK	TRANSPARENT (トウメイ).....TR	

## 4 Relation of Color Coding and Notes

C	C=	D	D=	E	F	F=	G	G=	A	A=	B
BR	RE	OR	YE	GR	BE	VI	GY	WH	GG	SB	PK
(チャ)	(アカ)	(タイ)	(キイ)	(ミト)	(アオ)	(ムラ)	(ハイ)	(シロ)	(クサ)	(ソラ)	(モモ)

## 5 Logic Symbols

	MIL	YAMAHA
NOT (INVERTOR)		
NOR		
NAND		

OR

Truth Table

A	B	Y
L	L	L
H	L	H
L	H	H
H	H	H

NOR

Truth Table

A	B	Y
L	L	H
H	L	L
L	H	L
H	H	L

Exclusive OR (排他的論理和)

Truth Table

A	B	Y
L	L	L
H	L	H
L	H	H
H	H	L

AND

Truth Table

A	B	Y
L	L	L
H	L	L
L	H	L
H	H	H

NOT (Inverter)

Truth Table

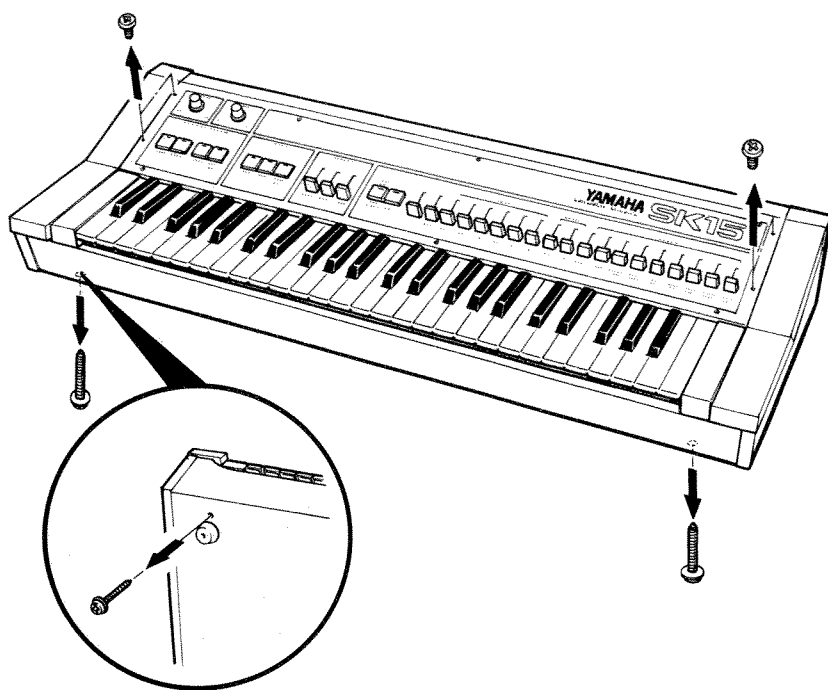
A	Y
L	H
H	L

NAND

Truth Table

A	B	Y
L	L	H
H	L	H
L	H	H
H	H	L

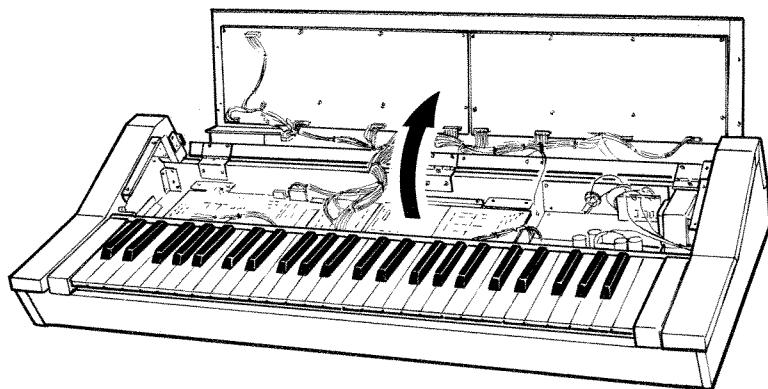
## DISASSEMBLY PROCEDURE(分解手順)



### Opening the Console Panel and Keyboard

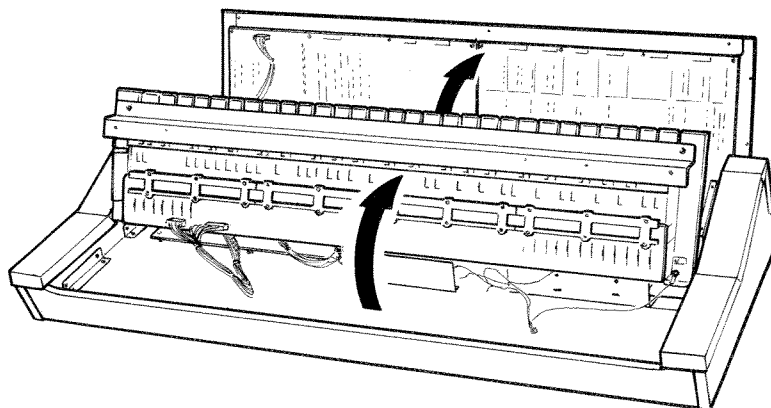
パネル及び、鍵盤部の開閉

- Remove 6 screws from the console panel and bottom cover.
- 図のようにパネル面及び底板部のネジ合計6本を外します。



- Lift the panel as shown in the figure until it is fully opened.

- パネル部を図のように持ち上げ回転させて開けます。



- The Keyboard can now be lifted as shown in the figure.

- パネルを上げた状態で鍵盤部を図のように回転させることができます。

## SPECIFICATIONS(総合仕様)

**Simultaneous Notes** . . . 7 (First note priority)  
**Keyboard** . . . . . 49 keys, C<sub>2</sub> ~ C<sub>6</sub> 4 octaves  
**OUTPUT Section** . . . . MASTER VOLUME  
**PITCH Section** . . . . . PITCH : 438Hz ~ 450Hz, 8', A<sub>3</sub>  
**TREMOLO/ENSEMBLE** . . . . SPEED : ON/OFF  
    TREMOLO: ON ; TREMOLO/  
    OFF ; ENSEMBLE  
    ORGAN : ON/OFF  
    POLY-SYNTH : ON/OFF  
**VOICE** . . . . . ORGAN : ON/OFF  
    STRING : ON/OFF  
    POLY-SYNTH : ON/OFF  
**VIBRATO** . . . . . DELAY : 0 ~ 2.5sec  
    SPEED : 5 ~ 7Hz  
    DEPTH : 0 ~ 10  
**CONTROLS** . . . . . POLY-SYNTH : SLOW ATTACK  
    SUSTAIN switch : ON/OFF  
    SUSTAIN lever : 0 ~ 2sec  
    BRILLANCE : + ~ 0 ~ -  
**ORGAN Section** . . . . . PERCUSSIVE : 0 ~ 10  
    Tone Levers : 16', 8', 5'-1/3, 4', 2'  
**STRING Section** . . . . . Tone Levers : 16', 8'

**POLY-SYNTH Section** VOLUME : 0 ~ 10  
                                  FEET : 8' ~ 16'  
                                  CUT OFF FREQ : 10 octaves  
                                  RESONANCE : Q ; 0.5 ~ 10  
                                  EG DEPTH : 0 ~ 10 octaves  
                                  ATTACK TIME : 3msec ~ 3sec  
                                  DECAY TIME : 30msec ~ 30sec  
                                  SUSTAIN LEVEL : 0 ~ 10  
                                  RELEASE TIME : 30msec ~ 30sec  
**REAR PANEL** . . . . . PHONES : 8 ~ 150 ohms  
                                  FOOT CONTROL : FC-3A (option)  
                                  OUTPUT : -10dBm/600ohms

### OTHERS

#### POWER REQUIREMENTS

U.S. & Canadian models . . . . . 120V, 60Hz 30 watts  
 General model . . . . . Selectable (110 - 130V/220V - 230V)  
    50/60Hz 30 watts

**DIMENSIONS (W x H x D)** . . . . . 818 x 133.5 x 357 (mm)  
    (32-3/16" x 5-1/4" x 14-1/16")

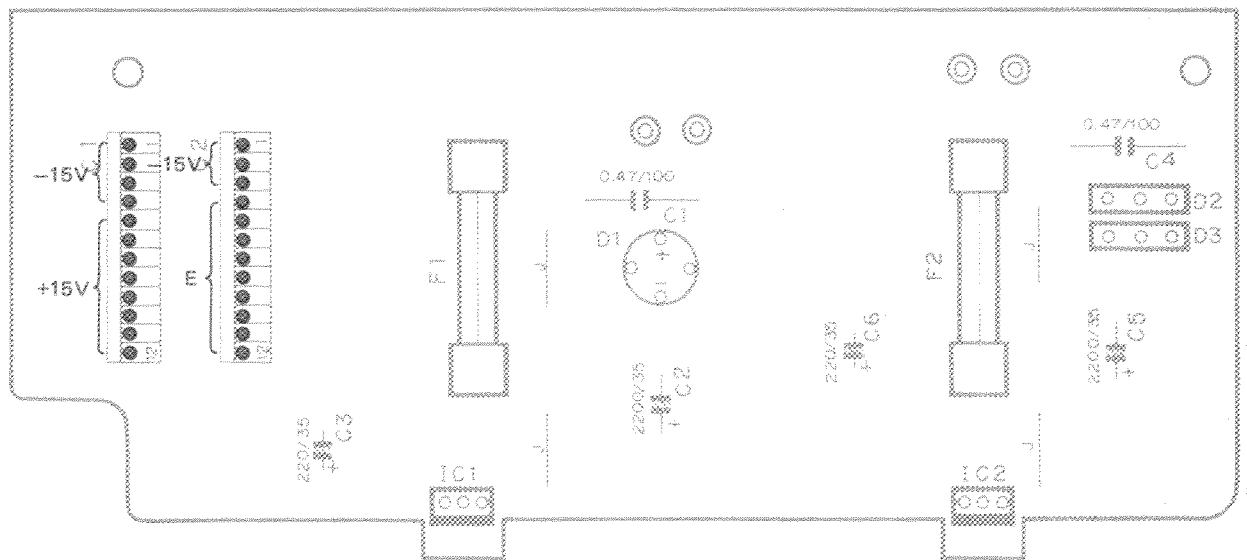
**WEIGHT** . . . . . 10.3kg (22.7 lbs)

**FINISH** . . . . . Rosewood-grain cabinet

Specifications subject to change due to improvement purpose.

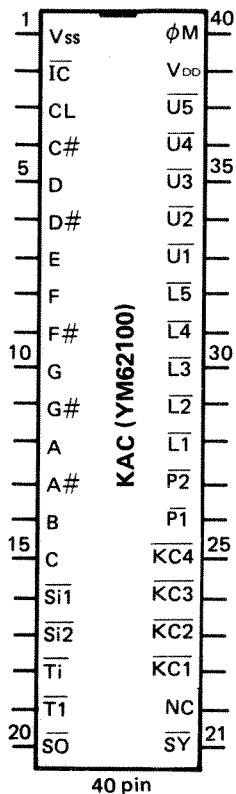
## DC circuit board


Item	Setting	Test point	Adjustment & reading	Where to adjustment	Remark
+15V		(C1-5 ~ 12)			Check
-15V		(C1-1 ~ 4) (C2-1 ~ 2)			Check



## LSI DATA TABLE

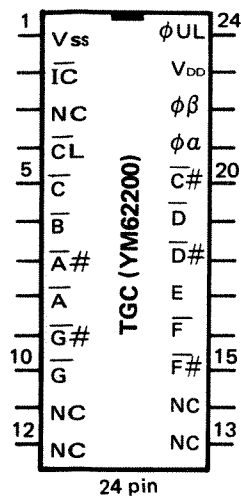
Part Name	YM62100	Function Name	KAC (Key Assigner)
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Pin No.	Name	Description	Pin No.	Name	Description
1	V <sub>ss</sub>	Ground (0V)	40	$\phi M$	Master clock in (1MHz)
2	$\overline{IC}$	Initial clear in	39	V <sub>DD</sub>	DC supply (-15V)
3	CL	Note block	38	$\overline{U5}$	UK octave block (C5# ~ C6)
4	C#	-do.-	37	$\overline{U4}$	-do.- (C4# ~ C5)
5	D	-do.-	36	$\overline{U3}$	-do.- (C3# ~ C4)
6	D#	-do.-	35	$\overline{U2}$	-do.- (C2# ~ C3)
7	E	-do.-	34	$\overline{U1}$	-do.- (C1 ~ C2)
8	F	-do.-	33	$\overline{L5}$	LK octave block (C5# ~ C6)
9	F#	-do.-	32	$\overline{L4}$	-do.- (C4# ~ C5)
10	G	-do.-	31	$\overline{L3}$	-do.- (C3# ~ C4)
11	G#	-do.-	30	$\overline{L2}$	-do.- (C2# ~ C3)
12	A	-do.-	29	$\overline{L1}$	-do.- (C1 ~ C2)
13	A#	-do.-	28	P2	NC
14	B	-do.-	27	P1	-do.-
15	C	-do.-	26	KC4	Key code data out ( $\Rightarrow$ GF-1, GOA)
16	$\overline{Si1}$	VDD	25	KC3	-do.- (-do.-)
17	$\overline{Si2}$	-do.-	24	KC2	-do.- (-do.-)
18	$\overline{Ti}$	Test pin (-15V)	23	KC1	-do.- (-do.-)
19	T1	Test pin (-15V)	22	NC	-
20	SO	VDD	21	SY	Synchro data out 

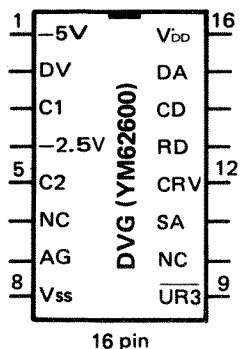


Part Name	YM62200	Function Name	TGC (Tone Generator)
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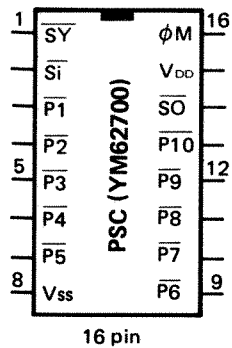
Pin No.	Name	Description	Pin No.	Name	Description
1	Vss	Ground (0V)	24	$\phi$ UL	Master Clock out (1MHz) NC
2	IC	Initial clear in	23	VDD	DC supply (-15V)
3	NC	—	22	$\phi$ $\beta$	Master clock in (2MHz, anti phase to $\phi$ a)
4	CL	Tone signal data out (serial data)	21	$\phi$ a	Master clock in (2MHz)
5	C	—do.—	20	C#	Tone signal data out (serial data)
6	B	—do.—	19	D	—do.—
7	A#	—do.—	18	D#	—do.—
8	A	—do.—	17	E	—do.—
9	G#	—do.—	16	F	—do.—
10	G	—do.—	15	F#	—do.—
11	NC	—	14	NC	—
12	NC	—	13	NC	—

Part Name	YM62600	Function Name	DVG (Delay Vibrato Generator)
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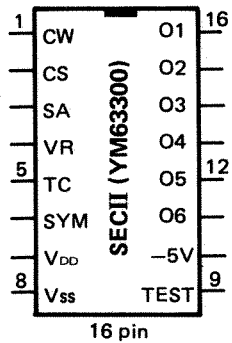
Pin No.	Name	Description	Pin No.	Name	Description
1	-5V	DC supply for vibrato signal	16	VDD	DC power supply (-15V)
2	DV	Delay vibrato signal out	15	DA	Delay time adjusting
3	C1	Capacitor for delay rise (positive side)	14	CD	Capacitor for delay time setting
4	-2.5	Vibrato signal mid-point potential	13	RD	Resistor for delay time setting
5	C2	Capacitor for delay rise (negative side)	12	CRV	C-R for vibrato oscillation
6	NC	—	11	SA	Vibrato speed adjusting
7	AG	Vibrato signal GND	10	NC	—
8	Vss	Ground (0V)	9	UR3	Key ON signal in $\square$ 30mSec

Part Name	YM62700	Function Name	PSC (Parallel-Serial Convertor)
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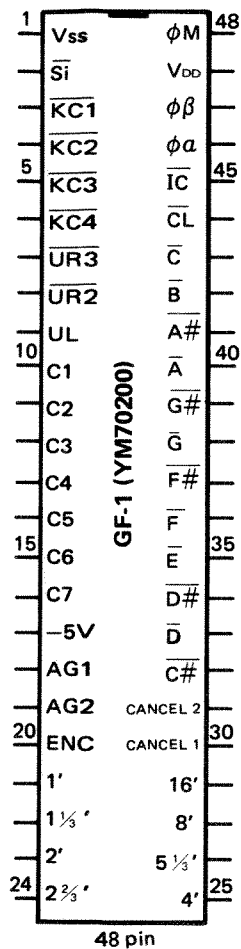
Pin No.	Name	Description	Pin No.	Name	Description
1	SY	Synchro-pulse input ( $\Leftarrow$ KAC)	16	$\phi$ M	Master clock input
2	Si	Serial data input NC	15	VDD	DC power supply (–15V)
3	P1	Parallel data input 1	14	SO	Serial data output ( $\Leftarrow$ GF-1, GOA)
4	P2	—do.— 2	13	P10	Parallel data input 10
5	P3	—do.— 3	12	P9	—do.— 9
6	P4	—do.— 4	11	P8	—do.— 8
7	P5	—do.— 5	10	P7	—do.— 7
8	Vss	DC power supply (0V)	9	P6	—do.— 6

Part Name	YM63300	Function Name	SECII (Symphonic Ensemble Clockgenerator II)
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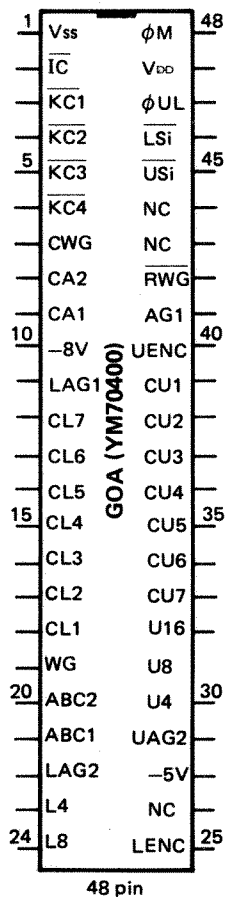
Pin No.	Name	Description	Pin No.	Name	Description
1	CW	CR for Wind up time	16	O1	Tremolo Ensemble clock OUT
2	CS	Speed set at fast	15	O2	—do.—
3	SA	Speed set at slow	14	O3	—do.—
4	VR	Tremolo speed set	13	O4	Ensemble clock OUT
5	TC	Slow/Fast change data IN	12	O5	—do.—
6	SYM	Tremolo/Ensemble change data IN	11	O6	—do.—
7	VDD	Power supply (–15V)	10	–5V	Power supply for clock (–5V)
8	Vss	Ground (0V)	9	TEST	Test pin

Part Name	YM70200	Function Name	GF-1 (Generator of Flute – 1)
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Pin No.	Name	Description	Pin No.	Name	Description
1	Vss	Ground (0V)	48	$\phi M$	Master clock in (1MHz)
2	$\overline{Si}$	Serial data in (sustain) ( $\Leftrightarrow$ PSC)	47	VDD	DC supply (–15V)
3	$\overline{KC1}$	Key code data in ( $\Leftrightarrow$ KAC)	46	$\phi\beta$	Master clock in (2MHz, anti phase to $\phi\alpha$ )
4	$\overline{KC2}$	–do.–	45	$\phi\alpha$	Master clock in (2MHz)
5	$\overline{KC3}$	–do.–	44	$\overline{IC}$	Initial clear in
6	$\overline{KC4}$	–do.–	43	$\overline{CL}$	Tone signal data in (serial data $\Leftarrow$ TGC)
7	$\overline{UR3}$	Key ON data out NC	42	$\overline{C}$	–do.–
8	$\overline{UR2}$	–do.–	41	$\overline{B}$	–do.–
9	UL	UK/LK control data in (Vss: LK VDD: UK)	40	$\overline{A\#}$	–do.–
10	C1	Capacitor for ORGAN signal envelope setting	39	$\overline{A}$	–do.–
11	C2	–do.–	38	$\overline{G\#}$	–do.–
12	C3	–do.–	37	$\overline{G}$	–do.–
13	C4	–do.–	36	$\overline{F\#}$	–do.–
14	C5	–do.–	35	$\overline{F}$	–do.–
15	C6	–do.–	34	$\overline{E}$	–do.–
16	C7	–do.–	33	$\overline{D\#}$	–do.–
17	–5V		32	$\overline{D}$	–do.–
18	AG1	Envelope GND	31	$\overline{C\#}$	–do.–
19	AG2	Signal GND	30	CANCEL 2	
20	ENC	Click cancel signal out	29	CANCEL 1	NC
21	1'	Signal out (sine wave)	28	16'	Signal out (sine wave)
22	1 1/3'	–do.–	27	8'	–do.–
23	2'	–do.–	26	5 1/3'	–do.–
24	2 2/3'	–do.–	25	4'	–do.–

Part Name	YM70400	Function Name	GOA (Generator of Orchestra & ABC)
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Pin No.	Name	Description	Pin No.	Name	Description
1	Vss	Ground (0V)	48	$\phi M$	Master clock in
2	$\overline{IC}$	Initial clear in	47	VDD	DC power supply (-15V)
3	$\overline{KC1}$	Key code data in	46	$\phi UL$	Master clock in (tone generator)
4	$\overline{KC2}$	-do.-	45	$\overline{LSi}$	NC
5	$\overline{KC3}$	-do.-	44	$\overline{USi}$	Serial data in (sustain, slow AT) ( $\leftrightarrow$ PSC)
6	$\overline{KC4}$	-do.-	43	NC	NC
7	CWG	NC	42	NC	-do.-
8	CA2	-do.-	41	$\overline{RWG}$	-do.-
9	CA1	-do.-	40	AG1	Ground (envelope)
10	-8V	-do.-	39	UENC	Click cancel signal OUT
11	LAG1	-do.-	38	CU1	Capacitor of POLY-SYNTH signal envelope setting
12	CL7	-do.-	37	CU2	-do.-
13	CL6	-do.-	36	CU3	-do.-
14	CL5	-do.-	35	CU4	-do.-
15	CL4	-do.-	34	CU5	-do.-
16	CL3	-do.-	33	CU6	-do.-
17	CL2	-do.-	32	CU7	-do.-
18	CL1	-do.-	31	U16	Signal OUT 16' $\square$ 1 : 1
19	WG	-do.-	30	U8	-do.- 8' $\square$ 1 : 1
20	ABC2	-do.-	29	U4	-do.- 4' $\square$ 1 : 1
21	ABC1	-do.-	28	UAG2	Ground (tone generator)
22	LAG2	-do.-	27	-5V	DC supply (-5V, tone generator)
23	L4	-do.-	26	NC	NC
24	L8	-do.-	25	LENC	-do.-

# **YAMAHA**

## **SYMPHONIC ENSEMBLE**

### **SK15**

# **PARTS LIST**

#### **CONTENTS**

A. Electronic Components.....	1
B. Keyboard Assembly .....	4
C. Control Panel .....	5
D. Cabinet Assembly .....	7

## A. Electronic Components

Ref. No.	Part No.	Description	部 品 名	Remarks	Common Model	Markets
* NA 10 69 10	Circuit Board , MK	#2921	M K シ ー ト			
* NA 10 71 40	- do. - , CPA.CPB.JK	#2894	CPA・CPB・JKシート			
* NA 10 71 50	- do. - , DM	#2895	D M シ ー ト			
* NA 10 71 60	- do. - , DC	#8555	D C シ ー ト			J
* NA 10 71 70	- do. - , - do. -	- do. -	//			U
* NA 10 71 80	- do. - , - do. -	- do. -	//			C
* NA 10 71 90	- do. - , - do. -	- do. -	//			G
NA 80 68 60	- do. - , TE	#8604	T E シ ー ト			
* NB 10 33 30	Switch Unit		スイッチユニット			
* NB 10 33 40	Power Supply Unit		電 源 ユ ニ ッ ト			J
* NB 10 33 50	- do. -		//			U
* NB 10 33 60	- do. -		//			C
* NB 10 33 70	- do. -		//			G
i G 00 11 80	IC	TC4013BP	I C	D Flip-Flop		
i G 00 13 90	- do. -	NJM4558DV	//	OP.Amp		
i G 00 15 60	- do. -	#00156	//	VCF		
i G 00 16 90	- do. -	TC4016BP	//	Bilateral SW		
i G 00 17 40	- do. -	TC4050BP	//	Converter		
i G 02 60 00	- do. -	#02600	//	VCA		
i G 02 87 00	- do. -	μPC14315H	//	+15V Regulator		
i G 03 28 00	- do. -	#03280	//	Diode Matrix		
i G 03 29 00	- do. -	#03290	//	BBD Driver		
i G 04 33 00	- do. -	TC4093BP	//	NAND		
i G 04 61 00	- do. -	MN3009	//	256 Stage BBD		
* i G 05 51 00	- do. -	TC4053BP	//	Multiplexer		
i T 62 10 00	- do. -	YM62100	//	KAC		
i T 62 20 00	- do. -	YM62200	//	TGC		
i T 62 60 00	- do. -	YM62600	//	DVG		
i T 62 70 00	- do. -	YM62700	//	PSC		
i T 63 30 00	- do. -	YM63300	//	SEC II		
i T 70 20 00	- do. -	YM70200	//	GF1		
i T 70 40 00	- do. -	YM70400	//	GOA		
i A 09 50 00	Transistor	2SA950(Y)	ト ラ ン ジ ス タ			
i A 10 15 70	- do. -	2SA1015(O,Y)	//			
i A 11 64 00	- do. -	2SA1164(Y)	//			
i A 11 64 10	- do. -	2SA1164(GR)	//			
i C 07 52 20	- do. -	2SC752(Y)	//			
i C 18 15 70	- do. -	2SC1815(O,Y)	//			
i C 21 20 00	- do. -	2SC2120(Y)	//			
i E 00 00 10	FET	2SK30A(Y)	F E T			
i E 10 12 30	- do. -	2SK105F	//			
i F 00 00 40	Diode	1S1555	ダ イ オ ー ド			
i F 00 08 80	- do. -	WZ050	//			
i F 00 11 90	LED	TLR-124	L E D			
i H 00 02 80	Diode	1D2C1	ダ イ オ ー ド			
i H 00 02 90	- do. -	1D2Z1	//			
i H 00 04 70	- do. -	1D4B1	//			

\* New Parts (新規部品)

Ref. No.	Part No.	Description	部 品 名	Remarks	Common Model	Markets
	i K 00 02 60	Photo Coupler	P873-G35-201B	フ ォ ト カ プ ラ ー		
	i L 00 02 70	Mica Base		マ イ カ ベ ー ス		
	CB 07 28 80	Insulation Bushing		絶 縁 ブ ッ シ ュ		
	FC 18 54 70	Metalized Mylar Cap.	0.47 $\mu$ F/100V	M M コ ン		
	FD 65 21 20	Polystyrene Capacitor	120PF	スチロールコンデンサ		
	FD 65 22 70	— do. —	270PF	"		
	FL 63 71 00	B.P. Electrolytic Cap.	10 $\mu$ F/16V	B P ケ ミ コ ン		
	FL 64 62 20	— do. —	2.2 $\mu$ F/25V	"		
	FM 11 61 00	— do. —	1 $\mu$ F/50V	"		
	FR 16 42 20	Spark Suppressor Cap.	0.022 $\mu$ F	スパークキラーコンデンサ		G
	FZ 00 01 10	— do. —	0.033 $\mu$ F	"		J,U
	FZ 00 09 50	— do. —	0.033 $\mu$ F	"		C
	FZ 00 28 50	Capacitor	0.0022 $\mu$ F	コ ン デ ン サ		U
	UW 63 91 00	Electrolytic Capacitor	1000 $\mu$ F/16V	ケ ミ コ ン		
	UW 85 92 20	— do. —	2200 $\mu$ F/35V	"		
※	GA 82 63 00	Power Transformer		電 源 ト ラ ン ス		J
※	GA 82 64 00	— do. —		"		U,C
※	GA 82 65 00	— do. —		"		G
	GE 30 03 50	Choke Coil	68 $\mu$ H	チ ョ ー ク コ イ ル		
	GE 90 01 70	OSC Coil	125 $\mu$ H	O S C コ イ ル		
	GE 90 05 00	Coil	CK4	コ イ ル		U
	HL 31 24 70	Metal Oxide Film Resistor	0.47 $\Omega$ 1P	酸 金 抵 抗		
	HL 31 34 70	— do. —	4.7 $\Omega$ 1P	"		
	HL 31 36 80	— do. —	6.8 $\Omega$ 1P	"		
	HL 31 51 80	— do. —	180 $\Omega$ 1P	"		
	HL 31 54 70	— do. —	470 $\Omega$ 1P	"		
	HL 31 55 60	— do. —	560 $\Omega$ 1P	"		
	HQ 23 00 20	Slide Variable Resistor	A10K $\Omega$	スライドボリューム	EG DEPTH	
	HQ 23 00 40	— do. —	B100K $\Omega$	"	SPEED	
	HQ 23 00 50	— do. —	B100K $\Omega$	"	DELAY	
	HQ 23 00 60	— do. —	B10K $\Omega$	"	CUTOFF, FEET, DEPTH RESONANCE, SUSTAIN	
	HQ 23 00 80	— do. —	C100K $\Omega$	"	PERCUSSIVE, ORGAN STRING, VOLUME	
	HQ 23 01 10	— do. —	A2M $\Omega$	"	ATTACK, DECAY RELEASE	
※	HQ 23 01 40	— do. —	B10K $\Omega$ x 2	"	BRILLIANCE	
	HS 31 05 50	Variable Resistor	A10K $\Omega$	ロータリーボリューム	MASTER VOLUME	
	HS 31 05 70	— do. —	B10K $\Omega$	"	PITCH	
	HT 19 00 30	Semi Variable Resistor	B2K $\Omega$	半 固 定 抵 抗		
	HT 19 00 40	— do. —	B5K $\Omega$	"		
	HT 19 00 50	— do. —	B10K $\Omega$	"		
	HT 19 00 80	— do. —	B100K $\Omega$	"		
	HT 19 00 90	— do. —	B200K $\Omega$	"		

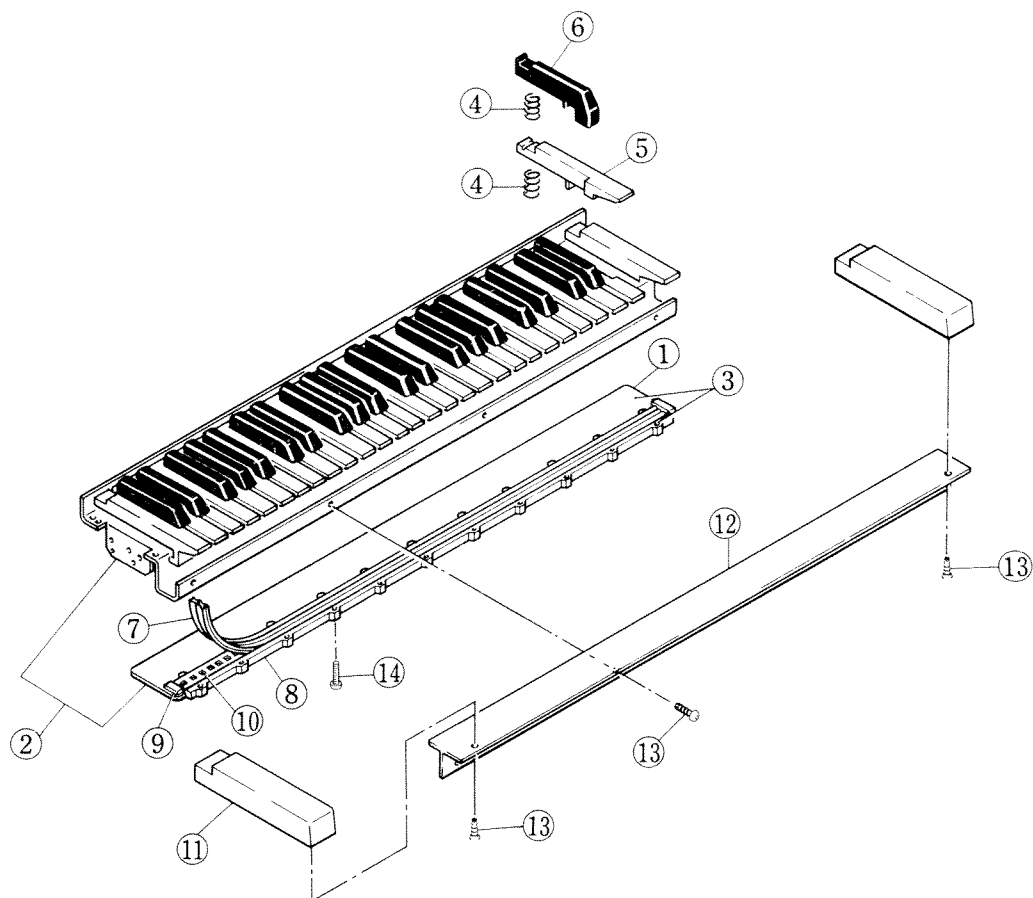
※ New Parts (新規部品)

Ref. No.	Part No.	Description	部 品 名	Remarks	Common Model	Markets
	HU 57 61 00	Metal Film Resistor	1K $\Omega$	金 皮 抵 抗		
	HU 57 72 20	— do. —	22K $\Omega$	"		
	HU 57 72 70	— do. —	27K $\Omega$	"		
	HV 55 43 30	Flame-Proof Carbon Resistor	33 $\Omega$	不 燃 化 カ ー ボ ン 抵 抗		
	KA 30 04 30	Toggle Switch		ト グ ル ス イ ッ チ	POWER	J
	KA 30 04 70	— do. —		"		G
	KA 30 05 80	— do. —		"		U
	KA 30 06 00	— do. —		"		C
	KA 40 07 90	Slide Switch		ス ラ イ ド ス イ ッ チ	SUSTAIN	
	KA 40 08 20	— do. —		"		G
	KA 90 17 01	Push Switch W/LED	Gray	プ ッ シ ュ ス イ ッ チ		
	KB 00 02 00	Fuse	0.5A 125V	ヒ ュ ー ズ		J
	KB 00 03 30	— do. —	1A 250V	"		J
	KB 00 05 50	— do. —	1A 250V	"		G
	KB 00 06 50	— do. —	T315mA 250V	"		G
	KB 00 10 20	— do. —	1A 250V	"		U,C
	KB 00 11 50	— do. —	0.5A 250V	"		U,C
※	KC 00 12 50	Relay	MZ-12	リ レ ー		
	MG 00 02 70	AC Cord		電 源 コ ー ド		C
	MG 00 06 00	— do. —		"		J
	MG 00 07 10	— do. —		"		U
	MG 00 08 60	— do. —		"		G
	LB 20 15 40	Phone Jack	JL2B	ジ ャ ッ ク		
	LB 20 15 30	Fuse Holder Pin		ヒ ュ ー ズ ホ ル ダ ー ピ ン		
	LB 50 02 50	Connector Base Pin	5P	2.5ピッチベースピン	Top Entry	
	LB 60 24 60	— do. —	7P	"	— do. —	
	LB 60 24 90	— do. —	8P	"	— do. —	
	LB 60 24 70	— do. —	10P	"	— do. —	
	LB 60 31 30	— do. —	12P	"	— do. —	
	LB 60 25 00	— do. —	7P	"	Side Entry	
	LB 50 03 70	— do. —	5P	"	Bottom Entry	
	LB 60 30 00	— do. —	7P	"	— do. —	
	LB 60 30 10	— do. —	8P	"	— do. —	
	LB 60 30 70	— do. —	10P	"	— do. —	
	LB 50 02 40	Connector Housing	5P	ハ ウ ジ ン グ		
	LB 60 24 40	— do. —	7P	"		
	LB 60 24 80	— do. —	8P	"		
	LB 60 24 50	— do. —	10P	"		
	LB 60 29 20	— do. —	12P	"		
	BB 00 24 30	Contact Pin		コ ン タ ク ト ピ ン		

※ New Parts (新規部品)



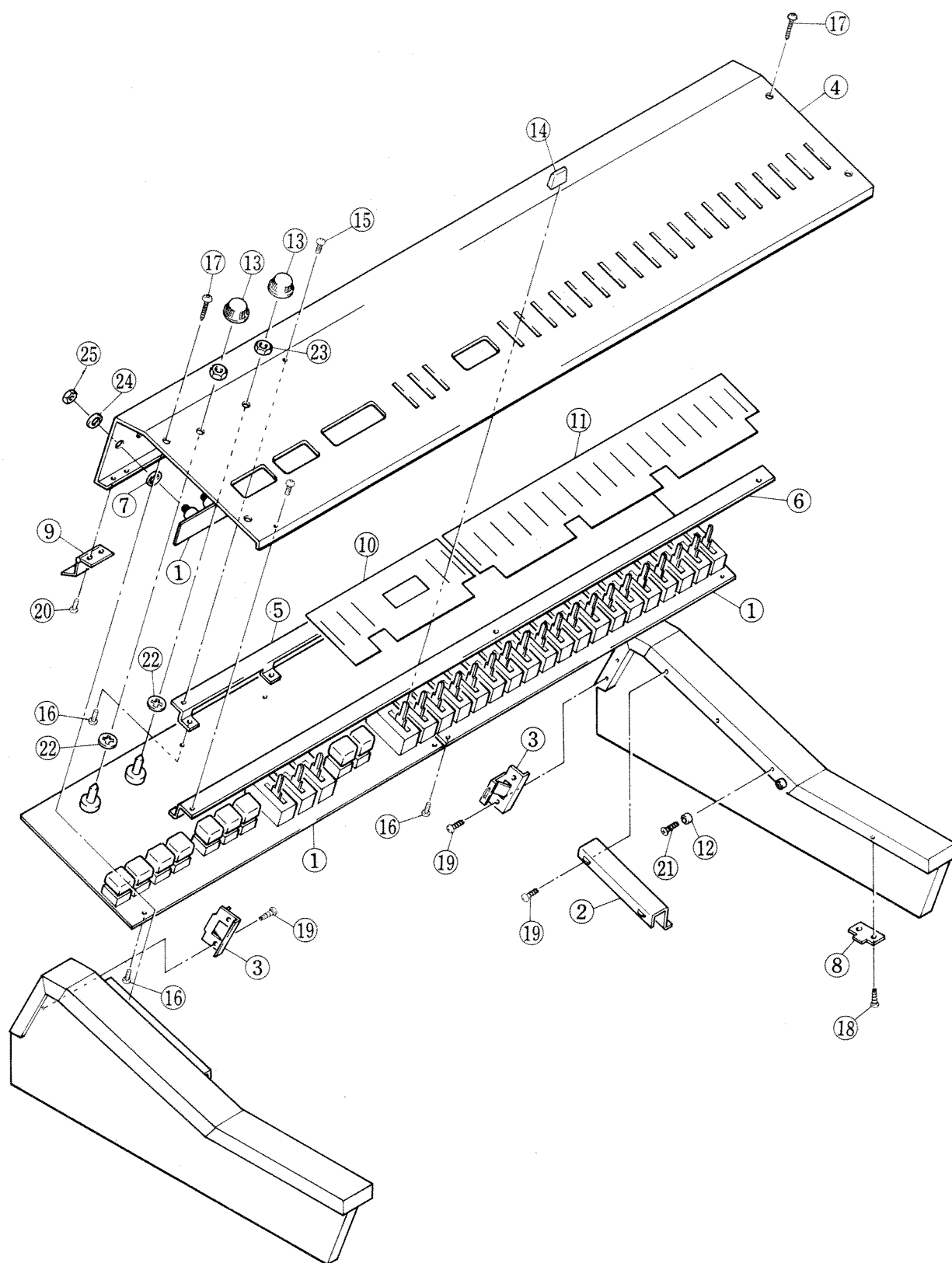
## B. Keyboard Assembly



Ref. No.	Part No.	Description	部 品 名	Remarks	Common Model	Markets
※ 1	NA 10 69 10	Circuit Board, MK	#2921	M K シ ー ト		
※ 2	NB 10 33 20	Keyboard Assembly		鍵 盤 Ass'y		
※ 3	NB 10 33 30	Switch Unit		スイッチユニット		
4	AA 04 37 20	Coil Spring		コイルスプリング		
5	CB 03 22 10	White Key	C, F	白 鍵		
	CB 03 22 20	— do. —	D	〃		
	CB 03 22 30	— do. —	B, E	〃		
	CB 03 22 40	— do. —	G	〃		
	CB 03 22 50	— do. —	A	〃		
	CB 03 22 60	— do. —	C'	〃		
6	CB 03 22 70	Black Key		黒 鍵		
7	CB 03 23 20	Rubber Contact		可 動 導 電 ゴ ム		
8	CB 03 24 00	Holder	12 Keys	基板ホルダー (Q)		
	CB 03 24 10	— do. —	13 Keys	〃 (K)		
9	CB 03 35 40	End Plate		エンドプレート		
10	CB 03 35 70	Isolation Spacer	12 Keys	絶縁スペーサ (Q)		
	CB 03 35 80	— do. —	13 Keys	〃 (K)		
11	CB 81 50 10	End Block		拍 子 木		
12	CB 81 51 20	Front Rail		ロ 棒 レ ー ル		
13	E i 34 01 00	Bind Tapping Screw	4 x 10	BL	バインドタッピングネジ	
14	EZ 33 01 40	Bind Screw	M3 x 14	Ye	エバータイトバインドネジ	

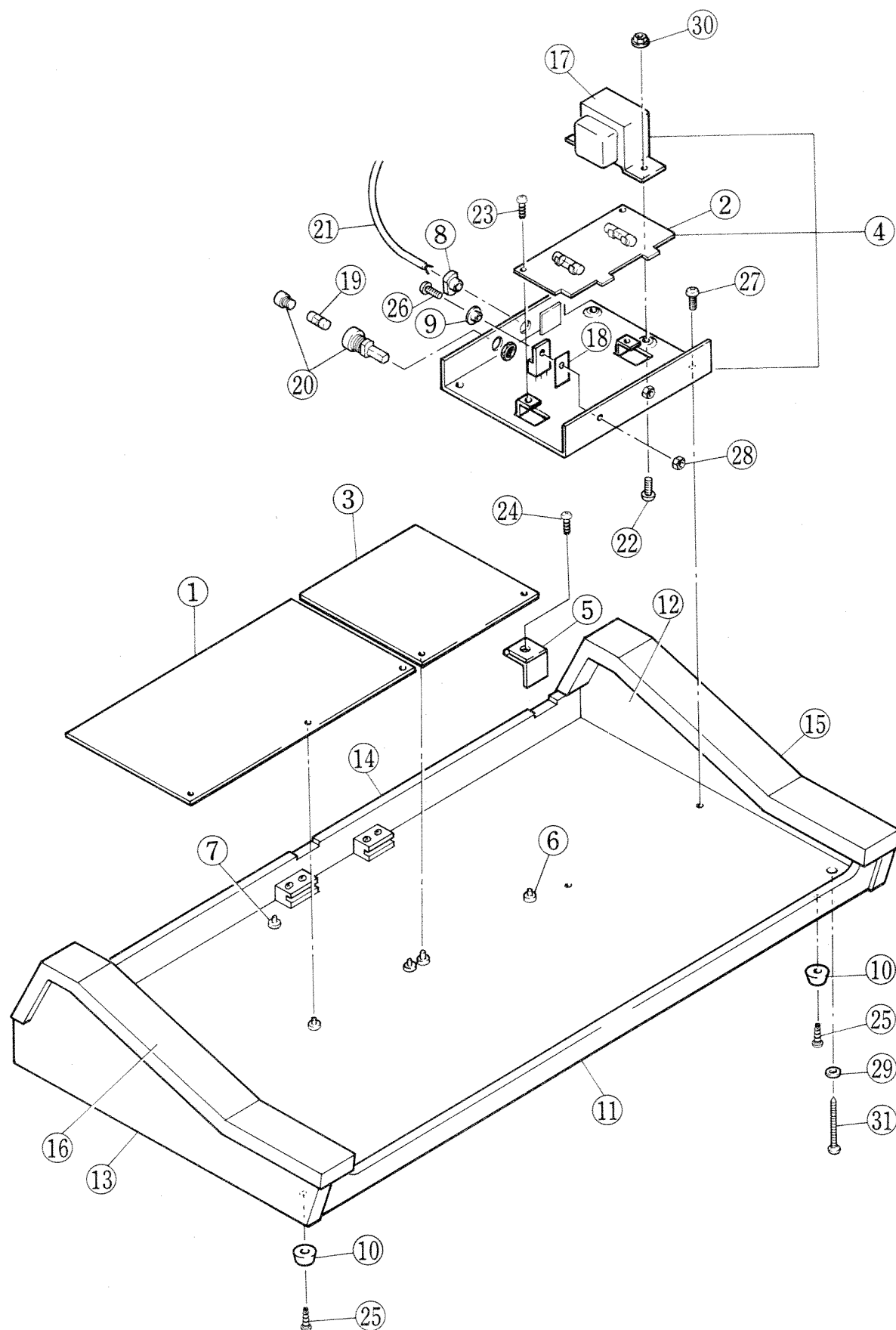
※ New Parts (新規部品)

### C. Control Panel





## D. Cabinet Assembly



Ref. No.	Part No.	Description	部 品 名	Remarks	Common Model	Markets
* 1	NA:10:71:50	Circuit Board, DM	#2895 D M シ ー ト			
* 2	NA:10:71:60	- do. - , DC	#8555 D C シ ー ト			J
*	NA:10:71:70	- do. - , - do. -	"			U
*	NA:10:71:80	- do. - , - do. -	"			C
*	NA:10:71:90	- do. - , - do. -	"			G
3	NA:80:68:60	- do. - , TE	#8604 T E シ ー ト			
* 4	NB:10:33:40	Power Supply Unit	電 源 ユ ニ ッ ト			J
*	NB:10:33:50	- do. -	"			U
*	NB:10:33:60	- do. -	"			C
*	NB:10:33:70	- do. -	"			G
5	AA:81:12:40	Hinge	蝶 番			
6	CB:03:97:50	Holder, Circuit Board	シ ー ト ホ ル ダ ー			
7	CB:04:00:80	- do. -	"			
8	CB:06:86:30	Cord Bushing	コ ー ド ブ ッ シ ュ			J
	CB:07:27:50	- do. -	"			G
	CB:80:68:50	- do. -	"			U,C
9	CB:07:28:80	Insulation Bushing	絶 縁 ブ ッ シ ュ			
10	CB:80:12:70	Leg	ゴ ム 脚			
* 11	DC:04:72:00	Case Assembly	外 装 集 成			J,C,G
*	DC:04:72:30	- do. -	"			U
* 12	DA:02:44:80	Side-Board Assembly (R)	側 板 集 成 (右)			J,C,G
*	DA:02:46:30	- do. - (R)	" "			U
* 13	DA:02:44:90	- do. - (L)	" (左)			J,C,G
*	DA:02:46:40	- do. - (L)	" "			U
* 14	DA:02:45:00	Back Board Assembly	背 面 板 集 成			J,C,G
*	DA:02:46:50	- do. -	"			U
* 15	DA:02:45:10	Side-Arm Assembly (R)	腕 木 集 成 (右)			J,C,G
*	DA:02:46:60	- do. - (R)	" "			U
* 16	DA:02:45:20	- do. - (L)	" (左)			J,C,G
*	DA:02:46:70	- do. - (L)	" "			U
* 17	GA:82:63:00	Power Transformer	電 源 ト ラ ン ス			J
*	GA:82:64:00	- do. -	"			U,C
*	GA:82:65:00	- do. -	"			G
18	IL:00:02:70	Mica Base	マ イ カ ベ ー ス			
19	KB:00:02:00	Fuse	0.5A 125V ヒ ュ ー ズ			J
	KB:00:06:50	- do. -	T315mA 250V "			G
	KB:00:11:50	- do. -	0.5A 250V "			U,C
20	LB:20:04:90	Fuse Holder	ヒ ュ ー ズ ホ ル ダ ー			J,U,C
	LB:20:05:90	- do. -	"			G
21	MG:00:02:70	AC Cord	電 源 コ ー ド			C
	MG:00:06:00	- do. -	"			J
	MG:00:07:10	- do. -	"			U
	MG:00:08:60	- do. -	"			G
22	ED:34:01:00	Bind Screw	M4 x 10 BL バ イ ン ド 小 ネ ジ			
23	EI:33:00:80	Bind Tapping Screw	3 x 8 BL バ イ ン ド タ ッ ピ ン グ ネ ジ			
24	EI:33:01:20	- do. -	3 x 12 BL "			
25	EI:34:01:60	- do. -	4 x 16 BL "			
26	EL:02:60:80	Sems Screw	2.6 x 8 Ye セ ム ス 小 ネ ジ			
27	EL:34:01:40	- do. -	4 x 14 BL "			
28	EV:10:02:60	Hexagonal Nut	2.6S Ye 六 角 ナ ッ ト			
29	EV:20:30:50	Flat Washer	5S 平 座 金			
30	EV:98:04:60	Hexagonal Nut	5S フ ラ ン ジ ナ ッ ト			
31	ED:95:03:50	Bind Screw	M5 x 35 BL 尖 先 バ イ ン ド 小 ネ ジ			

\* New Parts (新規部品)

