YAMAHA

PortaSound

PS-1
PS-2
PS-3

SERVICE MANUAL

001137

'81.5 2.5K K.S Printed in Japan.

YAMAHA

PortaSound

PS-1
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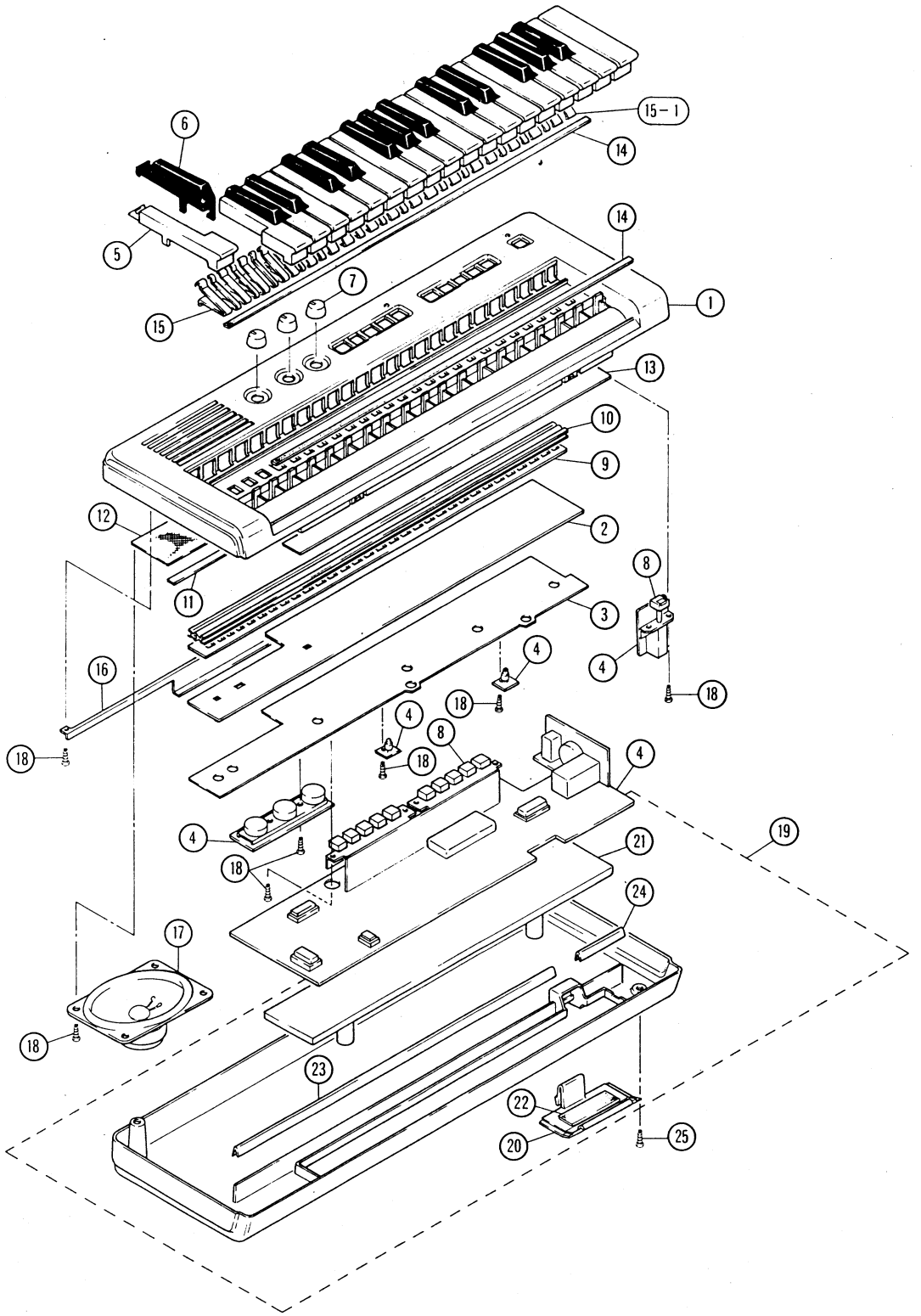
PARTS LIST

CONTENTS

000092

'81.5 2.5K K.S Printed in Japan.

■ PS-1 DIAPHRAGM ASSEMBLY



	Ref. No.	Part No.	Description	部品名	Remarks	Common Model	Markets
※	1	30 10 00 NB 10 10 5	Top Case	上ケース			
※	2	30 10 00 NA 10 48 20	Circuit Board MK	MKシート			
		30 10 00 NA 10 50 20	– do. – SW12	SW12シート			
※	3	30 10 00 NB 10 11 40	Shield Assembly	シールドシート Ass'y			

※ New Parts (新規部品)

■ PS-1 PARTS LIST

	Ref. No.	Part No.	Description	部品名	Remarks	Common Model	Markets
※	4	30 16 12 NB 10 11 80	Circuit Board Assembly M12	M 12 シート Ass'y			
※	5	30 16 00 CB 03 74 20	White Key F	白鍵			
※		30 16 00 CB 03 74 30	— do. — G	〃			
※		30 16 30 CB 03 74 40	— do. — A	〃			
※		30 16 00 CB 03 74 50	— do. — B	〃			
※		30 16 00 CB 03 74 60	— do. — C	〃			
※		30 16 00 CB 03 74 70	— do. — D	〃			
※		30 16 00 CB 03 74 80	— do. — E	〃			
※		30 16 00 CB 03 74 90	— do. — C'	〃			
※	6	30 16 00 CB 03 75 00	Black Key	黒鍵			
※	7	30 16 00 CB 03 83 00	Knob (Red)	ツマミ (赤)	Master Vol.		
		30 16 00 CB 03 83 10	— do. — (Yellow)	〃 (黄)	RHY. Vol.		
※	8	30 16 00 CB 03 82 60	Push Button Switch Knob (Red)	プッシュボタンスイッチノブ(赤)	Power SW		
		30 16 00 CB 03 82 70	— do. — (Yellow)	〃 (黄)	Rhythm		
		30 16 00 CB 03 82 80	— do. — (Green)	〃 (緑)	Orchestra		
		30 16 00 CB 03 82 90	— do. — (Brown)	〃 (茶)	Sustain, S. Start		
※	9	30 16 00 CB 03 76 40	Isolation Spacer	絶縁スペーサー			
※	10	40 10 00 CB 03 80 30	Rubber Contact	可動導電ゴム			
※	11	40 10 00 CD 01 05 30	Stopper Cloth	ストッパークロス			
※	12	40 10 00 CE 02 03 70	Speaker Cover	クレモナ			
※	13	40 10 00 CA 01 22 00	Ribbon	防振リボン			
※	14	40 10 00 CC 01 50 90	Felt	フェルト			
※	15	30 16 00 AA 04 93 10	Key Spring	鍵バネ	12 keys		
	15-1	30 16 00 AA 04 93 20	— do. —	〃	8 keys		
※	16	30 16 00 AA 04 94 20	Circuit Board Holder	基板止メ金具			
※	17	40 10 00 JA 09 51 00	Speaker 9 cm	スピーカー			
	18	40 10 00 Ei 03 00 80	Bind Head Tapping Screw 3 x 8	バインドタッピンネジ2種	Yellow		
	19	30 10 00 NB 10 10 60	Bottom Case Assembly	下ケース Ass'y			
※	20	30 16 00 CB 03 83 20	Battery Case Lid	バッテリーカバー			
※	21	40 10 00 CB 03 78 70	Soft Tape	ソフトテープ			
※	22	40 10 00 CB 03 79 60	— do. —	〃			
※	23	40 10 00 CA 01 22 70	Ribbon	防振リボン			
※	24	40 10 00 CA 01 22 80	— do. —	〃			
	25	40 10 00 Ei 03 01 00	Bind Head Tapping Screw 3 x 10	バインドタッピンネジ2種	Yellow		

※ New Parts (新規部品)

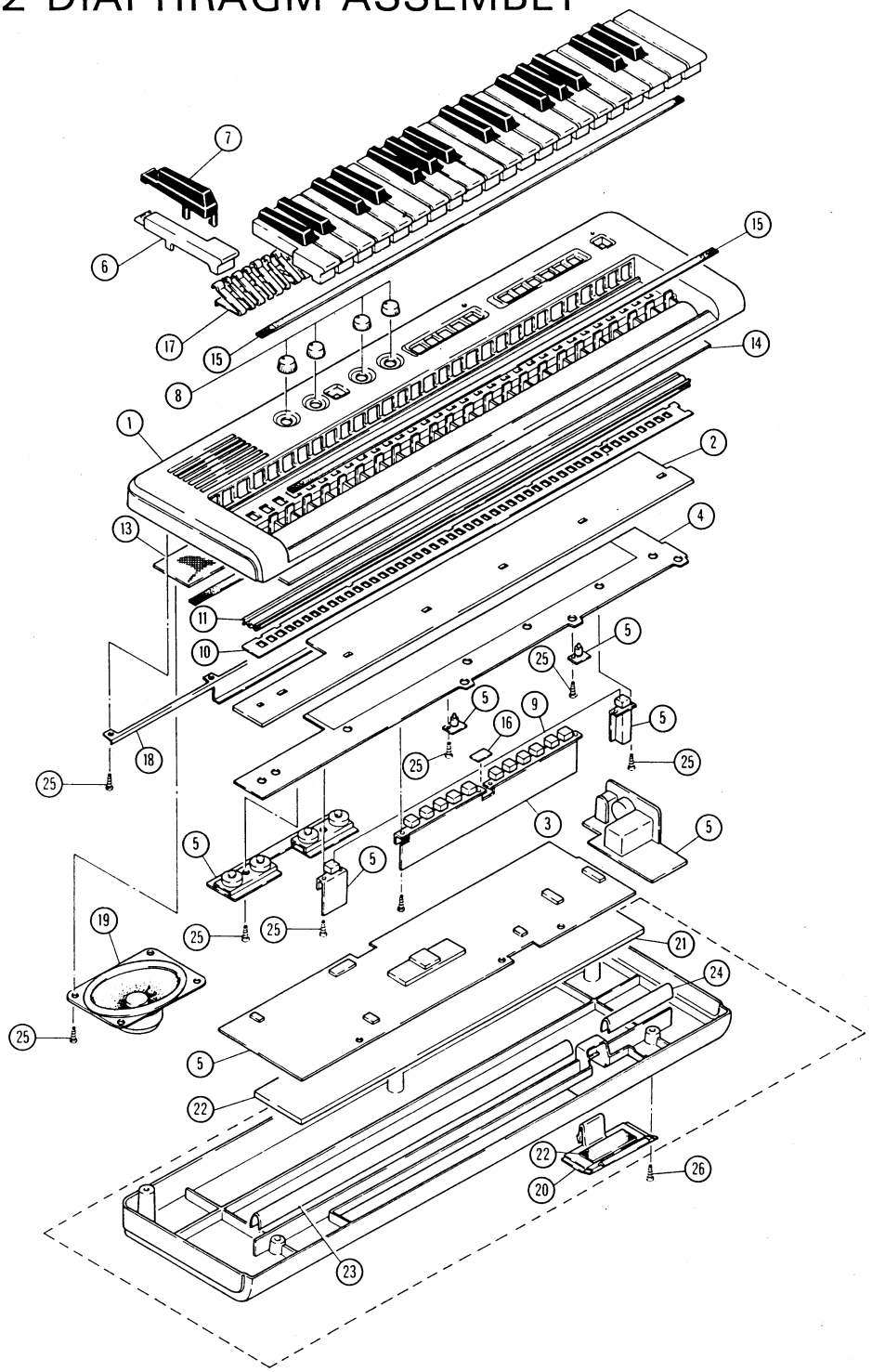
■ PS-1 PARTS LIST

Electronic Conponents (電気部品)

	Ref. No.	Part No.	Description		部品名	Remarks	Common Model	Markets
※		30 16 12 NB 10 11 80	Circuit Board Assembly	M12	M 12 シート Ass'y			
※		30 10 00 NA 10 50 20	Circuit Board	SW12	S W 12 シート			
※		30 10 00 NA 10 48 20	— do. —	MK	M・K シート			
		40 10 00 iG 00 13 90	IC	NJM4558	I C	OP Amp.		
		40 10 00 iG 00 16 90	— do. —	TC4016	〃	Gate		
		40 10 00 iG 00 17 20	— do. —	TC4069	〃	INV.		
※		40 10 00 iG 04 58 00	— do. —	LA4138	〃	Power Amp.		
※		30 10 00 iT 11 05 00	— do. —	YM1105	〃	GEI		
		40 10 00 iA 07 33 40	Transistor	2SA733A	トランジスタ			
		40 10 00 iC 07 52 30	— do. —	2SC752	〃			
※		40 10 00 iC 18 15 30	— do. —	2SC1815	〃			
		40 10 00 iD 02 34 30	— do. —	2SD234	〃			
		40 10 00 iF 00 00 40	Diode	1S1555	ダイオード			
		42 00 00 iF 00 01 90	Zener Diode	WZ-090	ツェナーダイオード			
		42 00 00 iF 00 03 20	— do. —	WZ-061	〃			
※		40 10 00 iF 00 20 00	Light Emitted Diode	SLC22UR	発光ダイオード			
※		40 10 00 HY 00 11 50	Variable Resistor	A-10KΩ x 2, CIM	ボリューム	Master Vol. RHY.Vol. Tempo		
		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 FL 64 64 70	Nonpolar Capacitor	25V 4.7μF	NP コンデンサ			
		40 10 00 GE 90 01 90	OSC Coil	500μH	OSC コイル			
※		40 10 00 KA 80 22 60	Push Switch	5 Key	プッシュスイッチ(5連)	RHY./ORC.		
※		40 10 00 KA 80 23 00	— do. —	1 Key	〃 (1連)	Power SW		
		30 16 00 BA 01 45 30	Heat Sink		放熱板			
		40 10 00 LB 60 24 60	Base Post, Top Type (Male)	7P	トップ型ベースポスト			
		40 10 00 LB 60 29 40	— do. —	6P	〃			
※		40 10 00 JA 09 51 00	Speaker	9 cm	スピーカー			
		40 10 00 Ei 03 00 60	Bind Head Tapping Screw	3 x 6	バインドタッピンネジ2種			

※ New Parts (新規部品)

■ PS-2 DIAPHRAGM ASSEMBLY



	Ref. No.	Part No.	Description		部品名	Remarks	Common Model	Markets
※	1	30 10 00 NB 10 10 3	Top Case		上ケース			
※	2	30 10 00 NA 10 48 10	Circuit Board	MK	MKシート			
※	3	30 10 00 NA 10 50 10	– do. –	SW11	SW11シート			
※	4	30 10 00 NB 10 11 30	Shield Assembly		シールドシート Ass'y			
※	5	30 16 11 NB 10 11 70	Circuit Board Assembly	M11	M11シート Ass'y			

※ New Parts (新規部品)

■ PS-2 PARTS LIST

	Ref. No.	Part No.	Description		部品名	Remarks	Common Model	Markets
※	6	30 16 00 CB 03 74 20	White Key	F	白鍵			
※		30 16 00 CB 03 74 30	– do. –	G	〃			
※		30 16 00 CB 03 74 40	– do. –	A	〃			
※		30 16 00 CB 03 74 50	– do. –	B	〃			
※		30 16 00 CB 03 74 60	– do. –	C	〃			
※		30 16 00 CB 03 74 70	– do. –	D	〃			
※		30 16 00 CB 03 74 80	– do. –	E	〃			
※		30 16 00 CB 03 74 90	– do. –	C'	〃			
※	7	30 16 00 CB 03 75 00	Black Key		黒鍵			
※	8	30 16 00 CB 03 79 20	Knob	(Red)	ツマミ(赤)	Master Vol.		
※		30 16 00 CB 03 79 30	– do. –	(Blue)	〃 (青)	A.B.C. Vol.		
※		30 16 00 CB 03 79 40	– do. –	(Yellow)	〃 (黄)	RHY. Tempo, Vol		
※	9	30 16 00 CB 03 75 90	Push Button Switch Knob	(Red)	プッシュボタンスイッチノブ(赤)	Power SW		
※		30 16 00 CB 03 76 00	– do. –	(Blue)	〃 (青)	A.B.C.		
※		30 16 00 CB 03 78 90	– do. –	(Yellow)	〃 (黄)	Rhythm		
※		30 16 00 CB 03 79 00	– do. –	(Green)	〃 (緑)	Orchestra		
※		30 16 00 CB 03 79 10	– do. –	(White)	〃 (白)	Sustain, S. Start		
※	10	30 16 00 CB 03 76 30	Isolation Spacer		絶縁スペーサー			
※	11	40 10 00 CB 03 80 20	Rubber Contact		可動導電ゴム			
※	12	40 10 00 CD 01 05 20	Stopper Cloth		ストッパークロス			
※	13	40 10 00 CE 02 03 60	Speaker Cover		クレモナ			
※	14	40 10 00 CA 01 22 00	Ribbon		防振リボン			
	15	40 10 00 CC 01 50 80	Felt		フェルト			
※	16	40 10 00 BA 01 47 20	Earth Circuit		アースシート			
※	17	30 16 00 AA 04 93 00	Key Spring		鍵バネ	13 keys		
※		30 16 00 AA 04 93 10	– do. –		〃	12 keys		
※	18	30 16 00 AA 04 94 10	Circuit Board Holder		基板止メ金具			
※	19	40 10 00 JA 09 51 00	Speaker	9 cm	スピーカー			
※		30 10 00 NB 10 10 40	Bottom Case Assembly		下ケース Ass'y			
※	20	30 16 00 CB 03 75 80	Battery Case Lid		バッテリーカバー			
※	21	40 10 00 CB 03 78 70	Soft Tape		ソフトテープ			
	22	40 10 00 CB 03 79 50	– do. –		〃			
※	23	40 10 00 CA 01 22 50	Ribbon		防振リボン			
※	24	40 10 00 CA 01 22 60	– do. –		〃			
	25	40 10 00 Ei 03 00 80	Bind Head Tapping Screw	3 x 8	バインドタッピンネジ2種	Yellow		
	26	40 10 00 Ei 03 01 00	– do. –	3 x 10	〃	– do. –		

※ New Parts (新規部品)

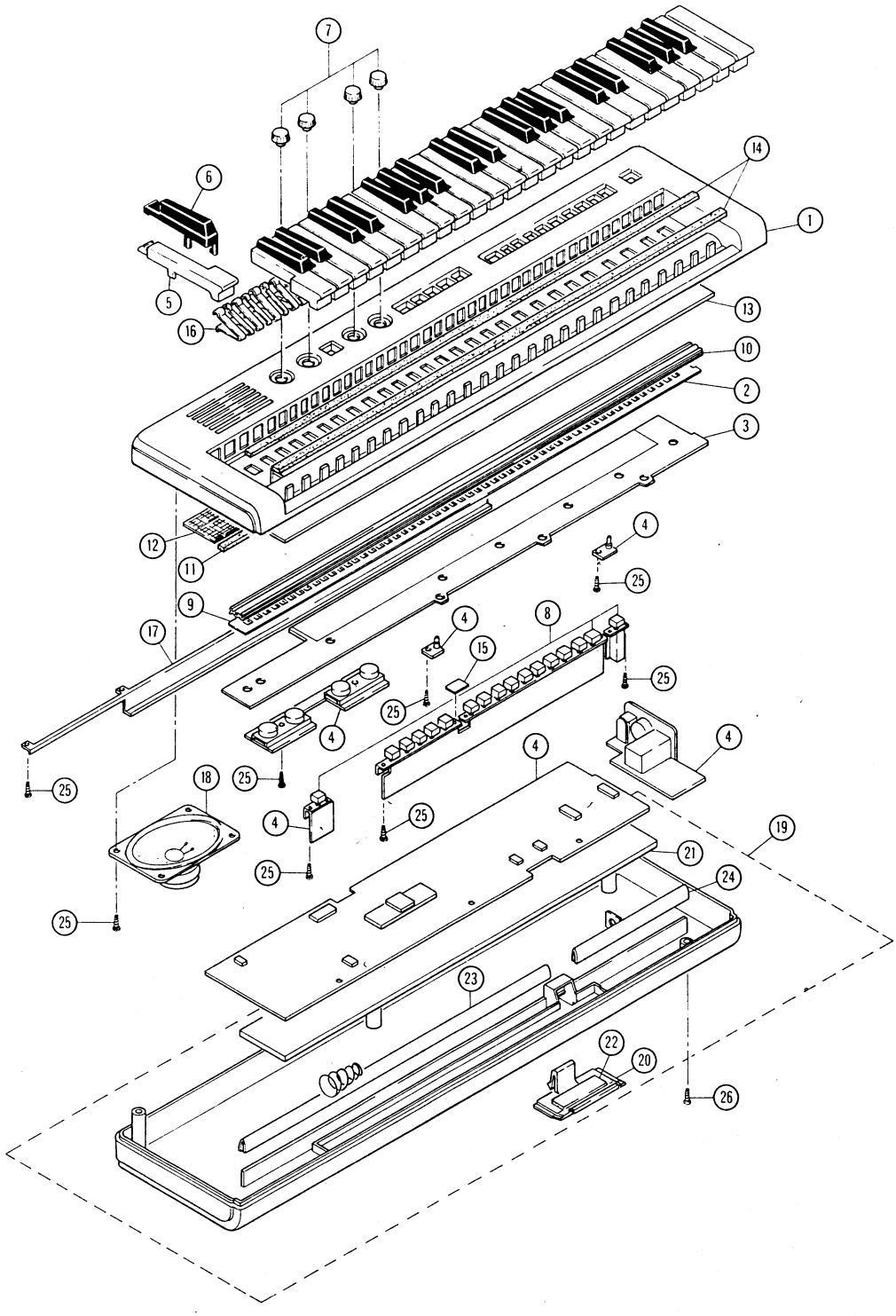
■ PS-2 PARTS LIST

Electronic Conponents (電気部品)

	Ref. No.	Part No.	Description		部品名	Remarks	Common Model	Markets
※		30 16 11 NB 10 11 70	Circuit Board Assembly	M11	M 11 シート Ass y			
※		30 10 00 NA 10 50 10	Circuit Board	SW11	S W 11 シート			
※		30 10 00 NA 10 48 10	– do. –	MK	M K シート			
		40 10 00 iG 00 13 90	IC	NJM4558	I C	OP Amp.		
		40 10 00 iG 00 16 90	– do. –	TC4016	〃	Gate		
		40 10 00 iG 00 17 20	– do. –	TC4069	〃	INV.		
※		40 10 00 iG 04 58 00	– do. –	LA4138	〃	Power Amp.		
※		30 10 00 iT 11 04 00	– do. –	YM1104	〃	GE II		
		40 10 00 iA 07 33 40	Transistor	2SA733A	トランジスタ			
		42 00 00 iC 07 52 30	– do. –	2SC752	〃			
※		40 10 00 iC 18 15 30	– do. –	2SC1815	〃			
		40 10 00 iD 02 34 30	– do. –	2SD234	〃			
		40 10 00 iE 10 26 00	FET	2SK246	F E T			
		40 10 00 iF 00 00 40	Diode	1S1555	ダイオード			
		40 10 00 iF 00 03 20	Zener Diode	WZ061	ツェナーダイオード			
		40 10 00 iF 00 01 90	– do. –	WZ090	〃			
※		40 10 00 iF 00 20 00	Light Emitted Diode	SLC-22UR	発光ダイオード			
※		40 10 00 HY 00 11 30	Variable Resistor	A10KΩ + B100KΩ	ボリューム	ABC/Master Vol		
※		40 10 00 HY 00 11 40	– do. –	B100KΩ + C1MΩ	〃	RHY. Tempo, Vol.		
		40 10 00 UW 62 91 00	Electrolytic Capacitor	10V 1000μF	電解コンデンサ			
		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 FL 64 64 70	Nonpolar Capacitor	25V 4.7μF	NP コンデンサ			
		40 10 00 GE 90 01 90	OSC Coil	500μH	OSC コイル			
※		40 10 00 KA 80 22 60	Push Switch	5 Key	プッシュスイッチ(5連)	Rhythm		
※		40 10 00 KA 80 22 70	– do. –	6 Key	〃 (6連)	Orchestra		
※		40 10 00 KA 80 22 90	– do. –	1 Key	〃 (1連)	A.B.C.		
※		40 10 00 KA 80 23 00	– do. –		〃	Power SW		
※		30 16 00 BA 01 45 30	Heat Sink		放熱板			
		40 10 00 LB 60 24 60	Base Post, Top Type (Male)	7P	トップ型ベースポスト			
		40 10 00 LB 60 29 40	– do. –	6P	〃			
※		40 10 00 JA 09 51 00	Speaker	9 cm	スピーカー			
		40 10 00 Ei 03 00 60	Bind Head Tapping Screw	3 x 6	バインドタッピンネジ2種			

※ New Parts (新規部品)

■ PS-3 DIAPHRAGM ASSEMBLY



	Ref. No.	Part No.	Description		部品名	Remarks	Common Model	Markets
	1	30 10 00 NB 10 10 91	Top Case		上ケース			
※	2	30 10 00 NA 10 48 00	Circuit Board	MK	MKシート			
		30 10 00 NA 10 50 00	– do. –	SW10	SW10シート			
※	3	30 10 00 NB 10 10 90	Shield Assembly		シールドシート Ass'y			
※	4	30 16 10 NB 10 10 00	Circuit Board Assembly	M10	M10シート Ass'y			

※ New Parts (新規部品)

■ PS-3 PARTS LIST

	Ref. No.	Part No.	Description		部品名	Remarks	Common Model	Markets
※	5	30 16 00 CB 03 74 20	White Key	F	白鍵			
※		30 16 00 CB 03 74 30	– do. –	G	〃			
※		30 16 00 CB 03 74 40	– do. –	A	〃			
※		30 16 00 CB 03 74 50	– do. –	B	〃			
※		30 16 00 CB 03 74 60	– do. –	C	〃			
※		30 16 00 CB 03 74 70	– do. –	D	〃			
※		30 16 00 CB 03 74 80	– do. –	E	〃			
※		30 16 00 CB 03 74 90	– do. –	C'	〃			
※	6	30 16 00 CB 03 75 00	Black Key		黒鍵			
※	7	30 16 00 CB 03 79 20	Knob	(Red)	ツマミ (赤)	Master Vol.		
※		30 16 00 CB 03 79 30	– do. –	(Blue)	〃 (青)	A.B.C. Vol.		
※		30 16 00 CB 03 79 40	– do. –	(Yellow)	〃 (黄)	RHY. Tempo. Vol.		
※	8	30 16 00 CB 03 75 90	Push Button Switch	(Red)	プッシュボタンスイッチノブ(赤)	Power SW		
※		30 16 00 CB 03 76 00	– do. –	(Blue)	〃 (青)	A.B.C.		
※		30 16 00 CB 03 78 90	– do. –	(Yellow)	〃 (黄)	Rhythm		
※		30 16 00 CB 03 79 00	– do. –	(Green)	〃 (緑)	Orchestra		
※		30 16 00 CB 03 79 10	– do. –	(White)	〃 (白)	Sustain, S. Start.		
※	9	30 16 00 CB 03 76 20	Isolation Spacer		絶縁スペーサー			
※	10	40 10 00 CB 03 80 10	Rubber Contact		可動導電ゴム			
※	11	40 10 00 CD 01 05 10	Stopper Cloth		ストッパークロス			
※	12	40 10 00 CE 02 03 50	Speaker Cover		クレモナ			
※	13	40 10 00 CA 01 22 00	Ribbon		防振リボン			
	14	40 10 00 CC 01 50 70	Felt		フェルト			
※	15	40 10 00 BA 01 47 20	Earth Circuit		アースシート			
※	16	30 16 00 AA 04 93 10	Key Spring		鍵バネ	12 keys		
※		30 16 00 AA 04 93 20	– do. –		〃	8 keys		
※	17	30 16 00 AA 04 92 80	Circuit Board Holder		基板止メ金具			
※	18	40 10 00 JA 09 51 00	Speaker	9 cm	スピーカー			
※	19	30 10 00 NB 10 10 20	Bottom Case Ass'y		下ケース Ass'y			
※	20	30 16 00 CB 03 75 80	Battery Case Lid		バッテリーカバー			
※	21	40 10 00 CB 03 78 70	Soft Tape		ソフトテープ			
	22	40 10 00 CB 03 78 80	– do. –		〃			
※	23	40 10 00 CA 01 22 30	Ribbon		防振リボン			
※	24	40 10 00 CA 01 22 40	– do. –		〃			
	25	40 10 00 Ei 03 00 80	Bind Head Tapping Screw	3 x 8	バインドタッピングネジ2種	Yellow		
	26	40 10 00 Ei 03 01 00	– do. –	3 x 10	〃	– do. –		

※ New Parts (新規部品)

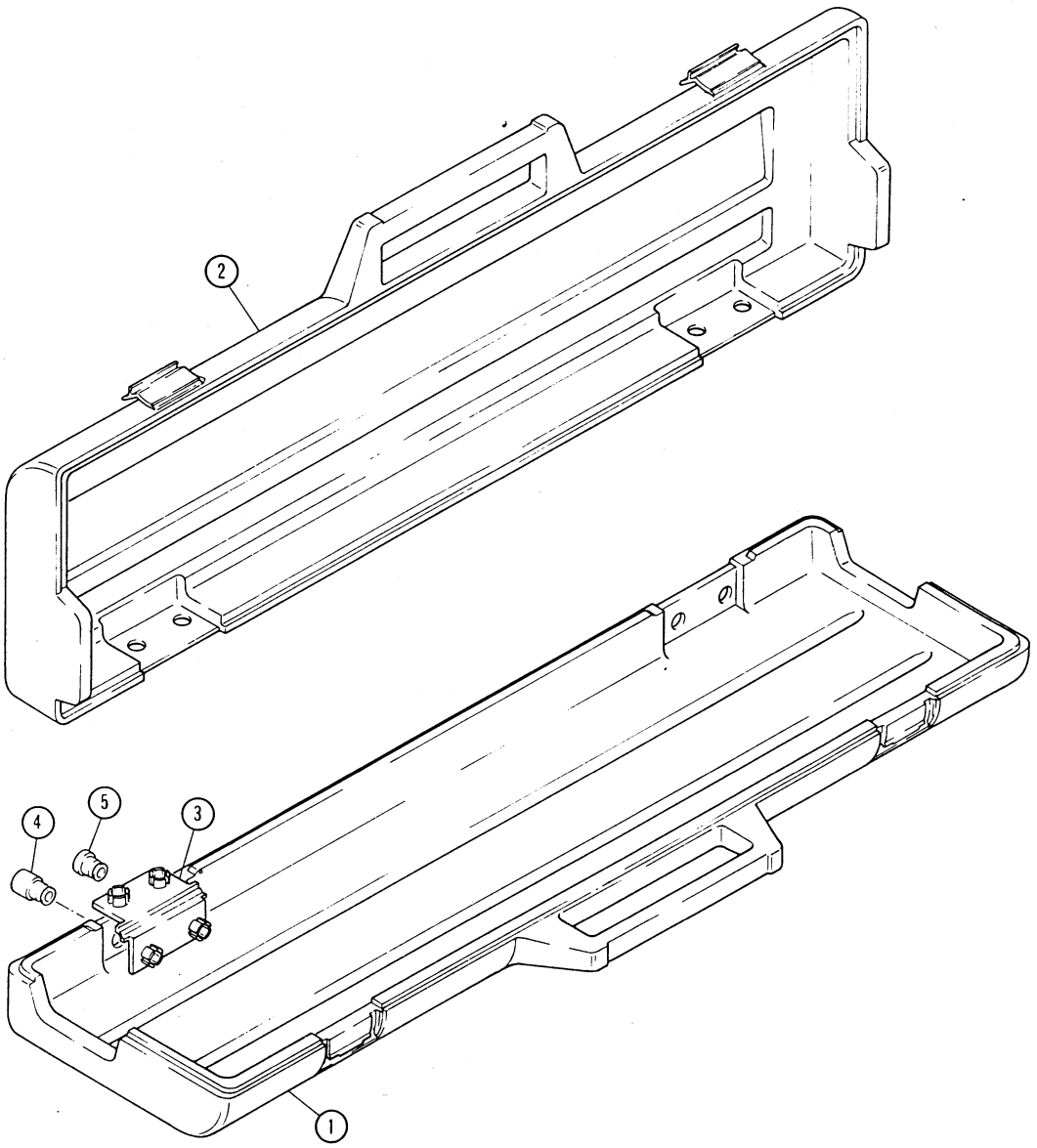
■ PS-3 PARTS LIST

Electronic Conponents (電気部品)

	Ref. No.	Part No.	Description		部品名	Remarks	Common Model	Markets
※		30 16 10 NB 10 10 00	Circuit Board Assembly	M10	M 10 シート Ass'y			
※		30 10 00 NA 10 50 00	Circuit Board	SW10	S W 10 シート			
※		30 10 00 NA 10 48 00	— do. —	MK	M ,K シート			
		40 10 00 iG 00 13 90	IC	NJM4558	I C	OP Amp.		
		40 10 00 iG 00 17 20	— do. —	TC4069	〃	INV.		
		40 10 00 iG 02 60 00	— do. —	iG02600	〃	VCA (PS-3)		
		40 10 00 iG 02 61 00	— do. —	iG02610	〃	VCF (PS-3)		
※		40 10 00 iG 04 58 00	— do. —	LA4138	〃	Power Amp.		
		30 10 00 iT 11 04 00	— do. —	YM1104	〃	GE II (PS-2,3)		
		40 10 00 iA 07 33 40	Transistor	2SA733	トランジスタ			
		40 10 00 iC 07 52 30	— do. —	2SC752	〃			
		40 10 00 iC 18 15 30	— do. —	2SC1815	〃			
		40 10 00 iD 02 34 30	— do. —	2SD234	〃			
		40 10 00 iE 10 26 00	FET	2SK246	F E T	PS-2,3		
		40 10 00 iF 00 00 40	Diode	1S1555	ダイオード			
		40 10 00 iF 00 01 90	Zener Diode	WZ090	ツェナーダイオード			
		40 10 00 iF 00 03 20	— do. —	WZ061	〃			
		40 10 00 iF 00 20 00	Light Emitted Diode	SLC22UR	発光ダイオード			
※		40 10 00 HY 00 11 30	Variable Resistor	A-10KΩ, B-100KΩ	ボリューム	ABC/Master Vol.		
※		40 10 00 HY 00 11 40	— do. —	C-1MΩ, B-100KΩ	〃	RHY. Tempo, Vol.		
		40 10 00 UW 62 91 00	Electrolytic Capacitor	10V 1000μF	電解コンデンサ			
		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 FL 64 64 70	Nonpolar Capacitor	25V 4.7μF	NP コンデンサ			
		40 10 00 GE 90 01 90	OSC Coil	500μH	OSC コイル			
※		40 10 00 KA 80 22 60	Push Switch	5 Key	プッシュスイッチ(5連)	Rhythm		
※		40 10 00 KA 80 22 80	— do. —	10 Key	〃 (10連)	Orchestra		
※		40 10 00 KA 80 22 90	— do. —	1 Key	〃	A.B.C.		
※		40 10 00 KA 80 23 00	— do. —		〃	Power SW		
※		30 16 00 BA 01 45 30	Heat Sink		放熱板			
		40 10 00 LB 60 24 90	Base Post, Top Type (Male)	8P	トップ型ベースポスト			
		40 10 00 LB 60 29 40	— do. —	6P	〃			
※		40 10 00 JA 09 51 00	Speaker	9 cm	スピーカー			
		40 10 00 Ei 03 00 60	Bind Head Tapping Screw	3 x 6	バインドタッピンネジ2種			

※ New Parts (新規部品)

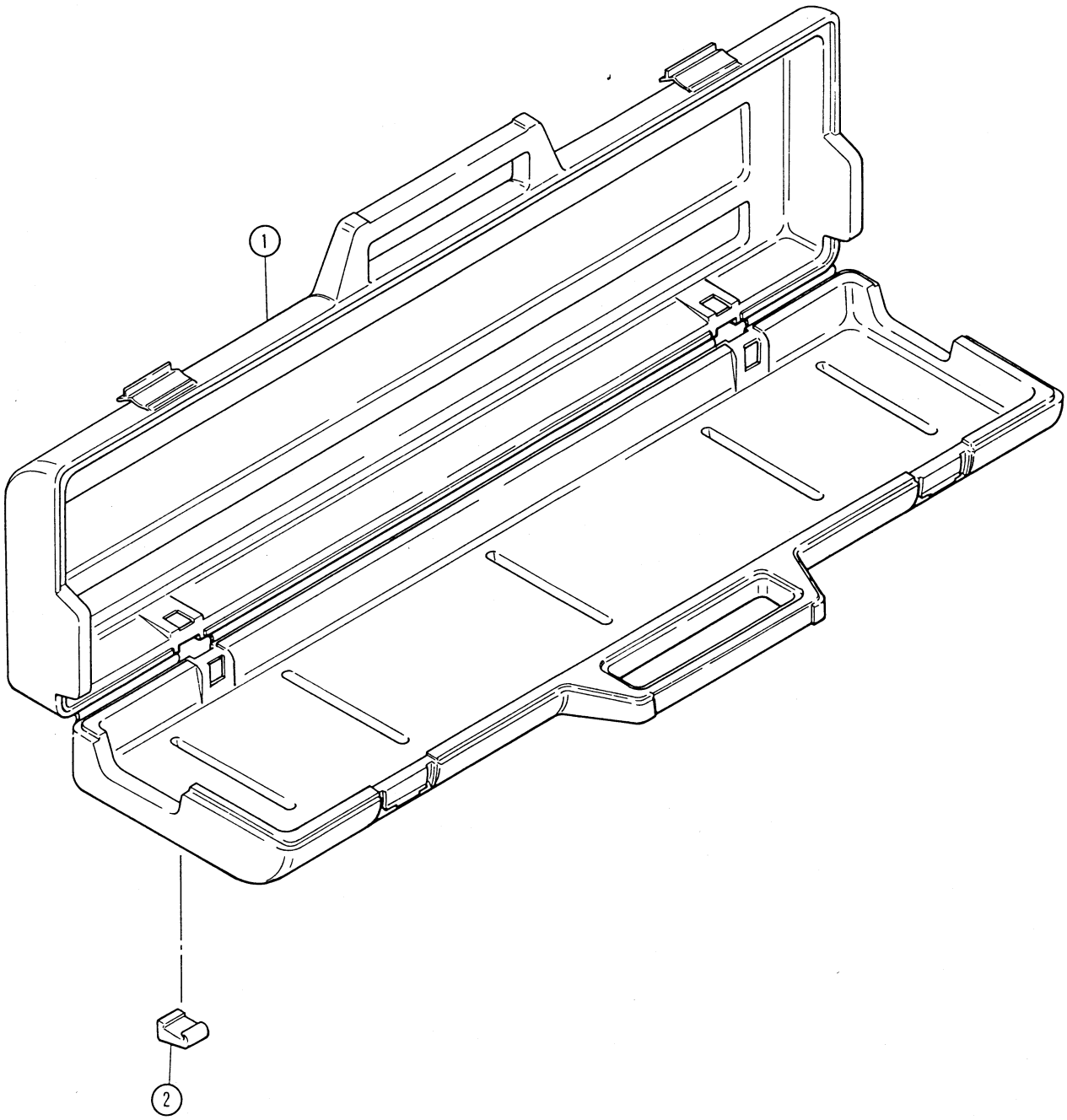
CARRYING CASE (PS-1) DIAPHRAGM ASSEMBLY, PARTS LIST



	Ref. No.	Part No.	Description	部品名	Remarks	Common Model	Markets
※		30 16 00 NB 10 11 20	Carrying Case	キャリングケース			
※	1	30 16 00 CB 03 73 00	Bottom Case	底ケース			
※	2	30 16 00 CB 03 73 10	Upper Case	蓋ケース			
※	3	30 16 00 CB 03 80 40	Hinge	ケース蝶番			
※	4	30 16 00 CB 03 80 50	Leg (Long)	ケース脚(長)			
※	5	30 16 00 CB 03 80 60	— do. — (Short)	〃 (短)			
※		40 10 00 CE 13 60 10	Cushion	クッション皮			
※		30 16 00 CB 03 85 60	Name Plate	ネームプレート			

※ New Parts (新規部品)

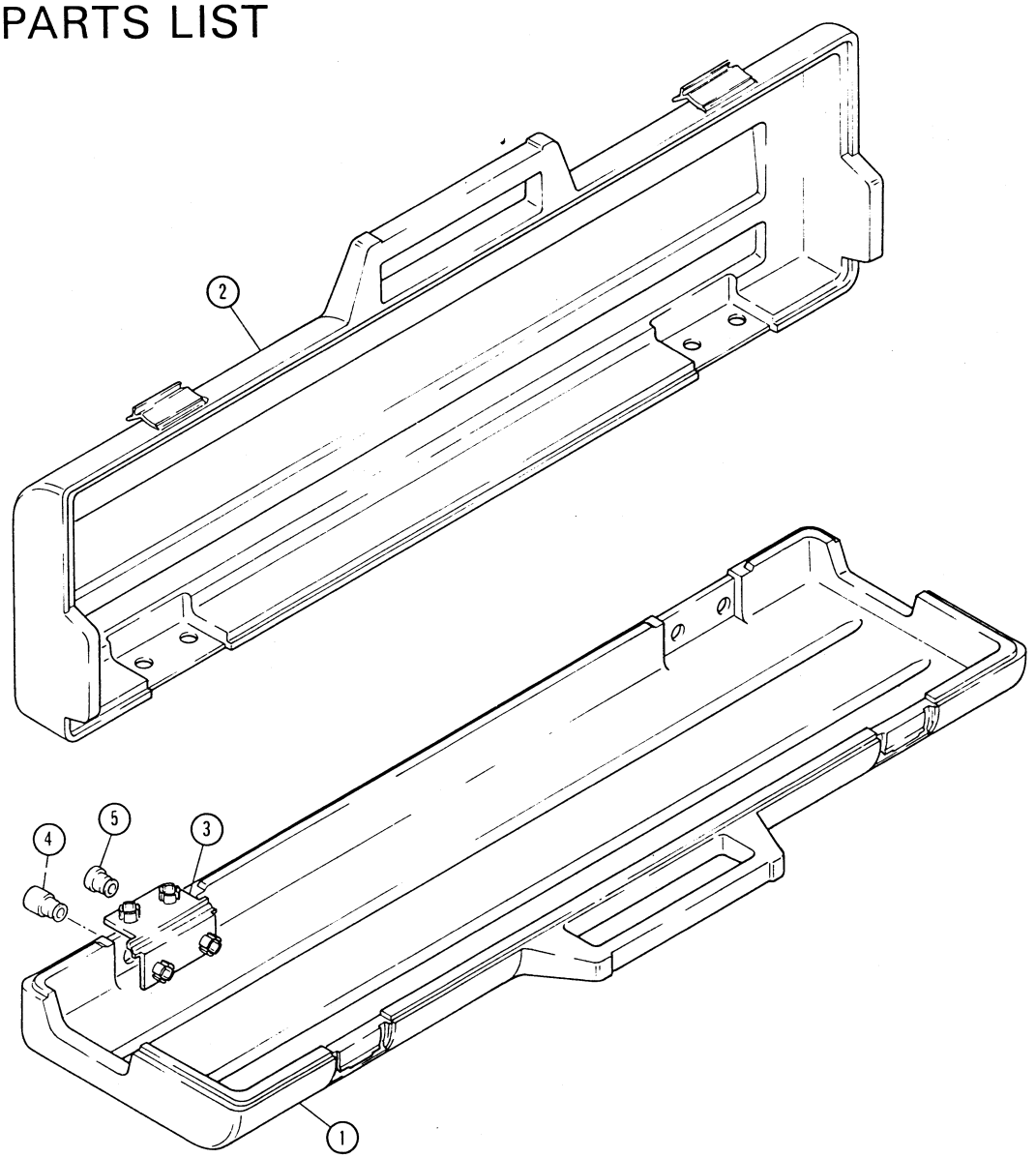
■ CARRYING CASE (PS-2) DIAPHRAGM ASSEMBLY, PARTS LIST



	Ref. No.	Part No.	Description	部品名	Remarks	Common Model	Markets
※		30 16 00 NB 10 11 10	Carrying Case Assembly	キャリングケース			
※	1	30 16 00 CB 03 72 70	Carrying Case	キャリングケース			
※	2	30 16 00 CB 03 72 80	Leg	ケース足			
※		40 10 00 CE 13 60 10	Cushion	クッション皮			
※		30 16 00 CB 03 85 50	Name Plate	ネームプレート			

※ New Parts (新規部品)

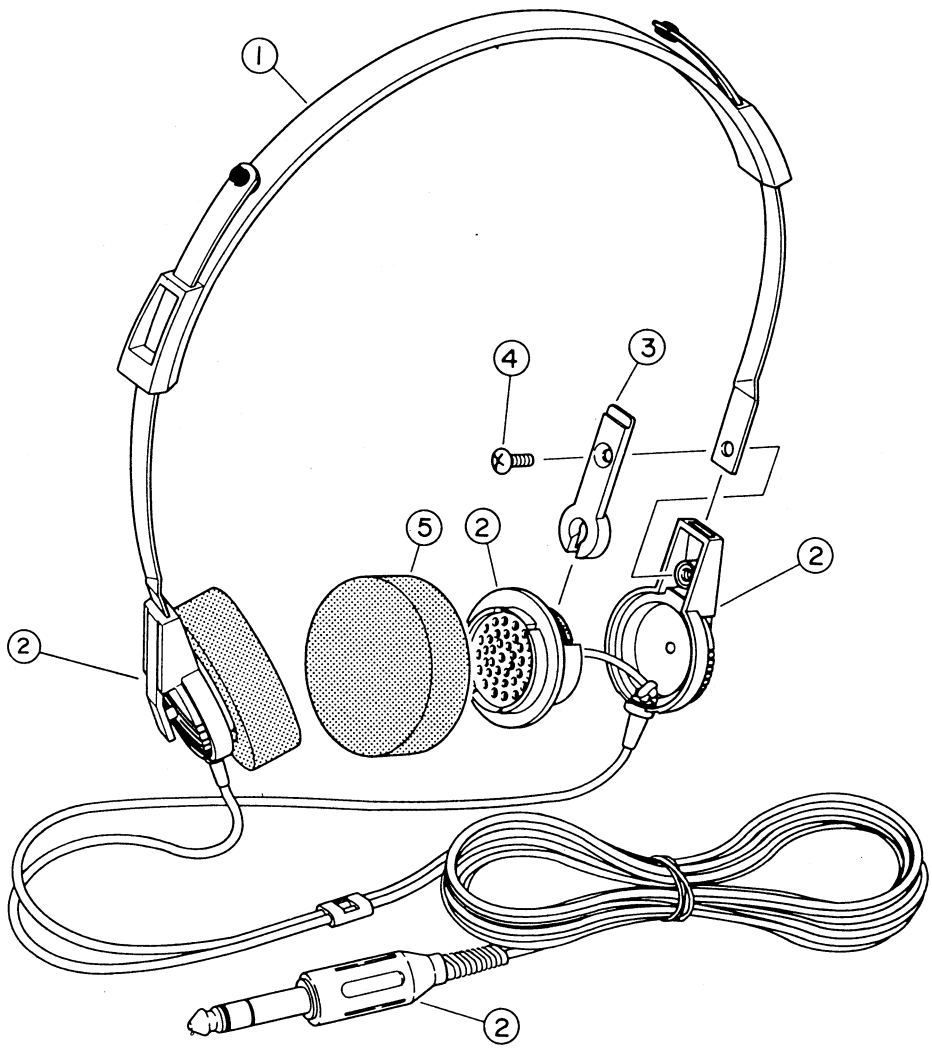
■ CARRYING CASE (PS-3) DIAPHRAGM ASSEMBLY, PARTS LIST



	Ref. No.	Part No.	Description	部品名	Remarks	Common Model	Markets
※		30 16 00 NB 10 11 00	Carrying Case	キャリングケース			
※	1	30 16 00 CB 03 71 40	Bottom Case	底ケース			
※	2	30 16 00 CB 03 71 50	Upper Case	蓋ケース			
※	3	30 16 00 CB 03 71 60	Hinge	ケース蝶番			
※	4	30 16 00 CB 03 71 70	Leg (Long)	ケース脚（長）			
※	5	30 16 00 CB 03 71 80	– do. – (Short)	〃（短）			
※		40 10 00 CE 13 60 10	Cushion	クッション皮			
※		30 16 00 CB 03 85 50	Name Plate	ネームプレート			

※ New Parts (新規部品)

■ YH-51 DIAPHRAGM ASSEMBLY



■ YH-51 PARTS LIST

Ref No.	Part No.	Description	(部 品 名)	Remarks	Common model	Markets
1	XX 00 23 80	Head Band Assembly	ヘッドバンドAss'y			
2	XX 00 23 90	Driver Unit Assembly	ドライバーユニットAss'y			
3	XX 00 24 00	Hanger Cover (1014196010)	ハンガーカバー	Included in Driver Unit Ass'y		
4	EF 22 60 40	Oval Head Screw 2.6×4	丸皿ネジ 2.6×4			
5	XX 00 24 10	Ear Pad (1036110010)	イヤーパッド			

CONTENTS

PS-1
PS-2
PS-3

SPECIFICATIONS

PS-1 SPECIFICATIONS

■ **KEYBOARD**

32 keys (F2 ~ C5)

■ **TONE SELECTORS**

Organ, String, Clarinet, Piano

■ **EFFECT**

Sustain

■ **AUTO RHYTHM SECTION**

Rhythm Selectors
Waltz, Swing, Rock, Latin
Controls
Start, Tempo, Volume, Tempo Lamp

■ **OTHER CONTROLS**

Power Switch, Pilot Lamp, Master Volume

■ **AUXILIARY TERMINALS**

Headphones, Exp. Pedal, DC9V-12V IN

■ **MAIN AMPLIFIER**

2W

■ **SPEAKER**

9 cm x 5 cm, 3.2Ω

■ **RATED VOLTAGE**

DC 9V = "C" dry cell x 6,
Power Adaptor (PA-1), Car Adaptor (CA1, CA2)

■ **POWER CONSUMPTION**

6W (with power adaptor used)

■ **DIMENSIONS & FINISH**

Width 42.55cm (16¾ ") Depth 14.3cm (5½")
Height 5.65cm (2¼") Weight 1.2kg (2½ lbs.)
*This weight does not include the weight of the dry-cell batteries.

■ **ACCESSORIES**

Carrying Case, 6 "C" Dry Cells, Adaptor (ADP-1)

Simultaneous musical note production: Max. 8 notes.

PS-2 SPECIFICATIONS

■ **KEYBOARD**

37 keys (F1 ~ F4)

■ **TONE SELECTORS**

Organ, String, Clarinet, Piano, Harpsichord

■ **EFFECT**

Sustain

■ **AUTO RHYTHM SECTION**

Rhythm Selectors
Waltz, Swing, Rock, Latin
Controls
Synchro Start, Tempo, Volume, Tempo Lamp

■ **AUTO BASS CHORDS**

Single Finger Chord, Volume

■ **OTHER CONTROLS**

Power Switch, Pilot Lamp, Master Volume

■ **AUXILIARY TERMINALS**

Headphones, Exp. Pedal, DC9V-12V IN

■ **MAIN AMP**

2W

■ **SPEAKER**

9 cm x 5 cm, 3.2Ω

■ **RATED VOLTAGE**

DC9V = "C" dry cell x 6
Power Adaptor (PA-1), Car Adaptor (CA1, CA2)

■ **POWER CONSUMPTION**

6W (with power adaptor used)

■ **DIMENSIONS & FINISH**

Width 48.4 cm Depth 14.3 cm
Height 5.65cm Weight 1.4 kg (3 lbs.)
*This weight does not include the weight of the dry-cell batteries.

■ **ACCESSORIES**

Carrying Case, 6 "C" Dry Cells, Adaptor (ADP-1)

Simultaneous musical note production: Max. 8 notes.
(*When ABC is used, 1 Bass note, 3 notes chord and 4 Manual keyboard notes can be produced at the same time.)

PS-3 SPECIFICATIONS

■ **KEYBOARDS**

44 keys (F1 ~ C5)

■ **TONE SELECTORS**

Organ, String, Clarinet, Piano, Harpsichord
Flute, Brass, Guitar, Vibraphone

■ **EFFECT**

Sustain

■ **AUTO RHYTHM SECTION**

Rhythm Selectors
Waltz, Swing, Rock, Latin
Controls
Synchro Start, Tempo, Volume, Tempo Lamp

■ **AUTO BASS CHORDS**

Single Finger Chord, Volume

■ **OTHER CONTROLS**

Power Switch, Pilot Lamp, Master Volume

■ **AUXILIARY TERMINALS**

Headphones, Exp.Pedal, DC9V-12V IN

■ **MAIN AMP**

2W

■ **SPEAKER**

9 cm x 5 cm, 3.2Ω

■ **RATED VOLTAGE**

DC9V = "C" dry cell x 6
Power Adaptor (PA-1, Car Adaptor (CA1, CA2)

■ **POWER CONSUMPTION**

6W (with power adaptor used)

■ **DIMENSIONS & FINISH**

Width 56.2cm Depth 14.3cm
Height 5.65cm Weight 1.5kg (3-1/3 lbs.)

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

■ **ACCESSORIES**

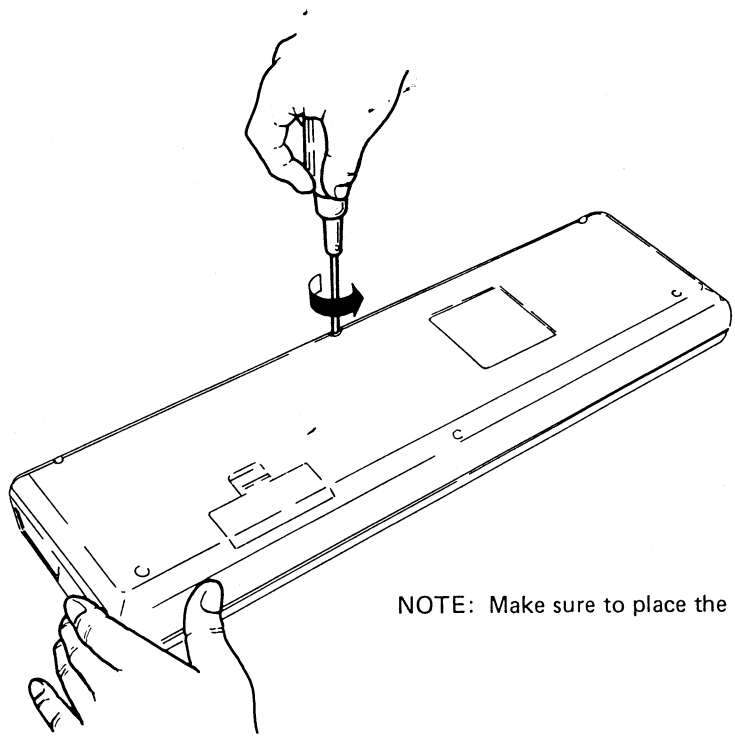
Carrying Case, 6 "C" Dry Cells, Adaptor (ADP-1)

Simultaneous musical note production: Max. 8 notes.
(*When ABC is used, 1 Bass note, 3 notes chord and 4 Manual keyboard notes can be produced at the same time.)

DISASSEMBLY PROCEDURES

1. Removal of bottom case

Lay the unit with its top side down on a piece of cloth which is to protect control and switch knobs on the panel against damage. Remove the screws fixing the bottom case with a cross-head screwdriver.



NOTE: Make sure to place the unit on a piece of cloth.

Fig. 1

2. Removal of main circuit board and AU circuit board

1) Insert a screwdriver into each screw hole in the main circuit board as shown in Fig. 2 and remove each fixing screw. (4 screws in all)
2) When the main circuit board is removed, SW circuit board comes with it as it is attached. AU circuit board which is not fixed with screws can be removed from the upper case by pulling it up. At this time, be careful not to apply an excessive force to the wire harness.

*No AU circuit board in PS-1

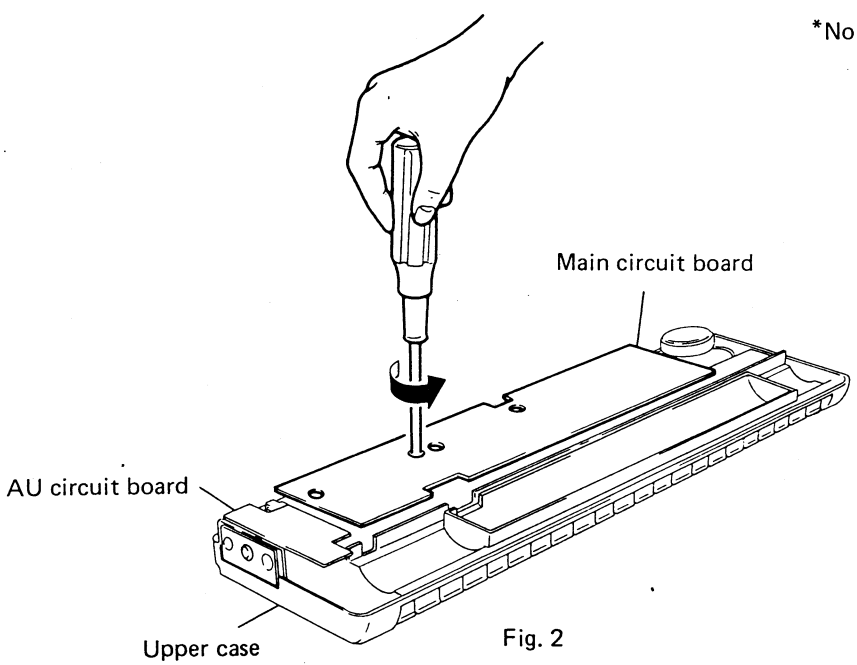


Fig. 2

PS-1
PS-2
PS-3

3. Removal of VR circuit board and PN circuit board

1) Remove the main circuit board according to foregoing steps 1 and 2.
2) Maké sure to take out batteries before removing the volume control knobs from the panel.
3) Both VR circuit board and PN circuit board can be removed by removing their fixing screws.

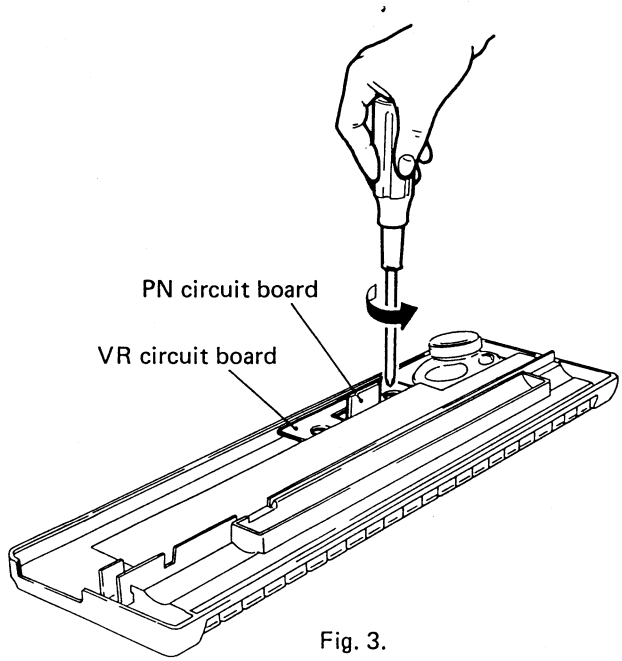


Fig. 3.

4. Removal of MK circuit board

1) Remove the main circuit board according to foregoing steps 1 and 2.
2) Remove the shield sheet and speaker.
3) Remove the circuit board holder.

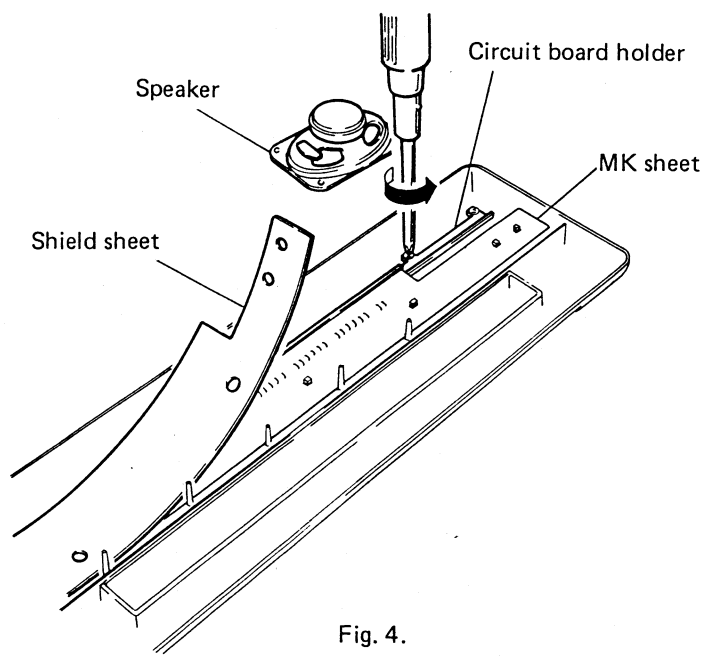


Fig. 4.

4) To remove MK circuit board, slide it in the horizontal direction before pulling it up as shown with an arrow in Fig. 5.

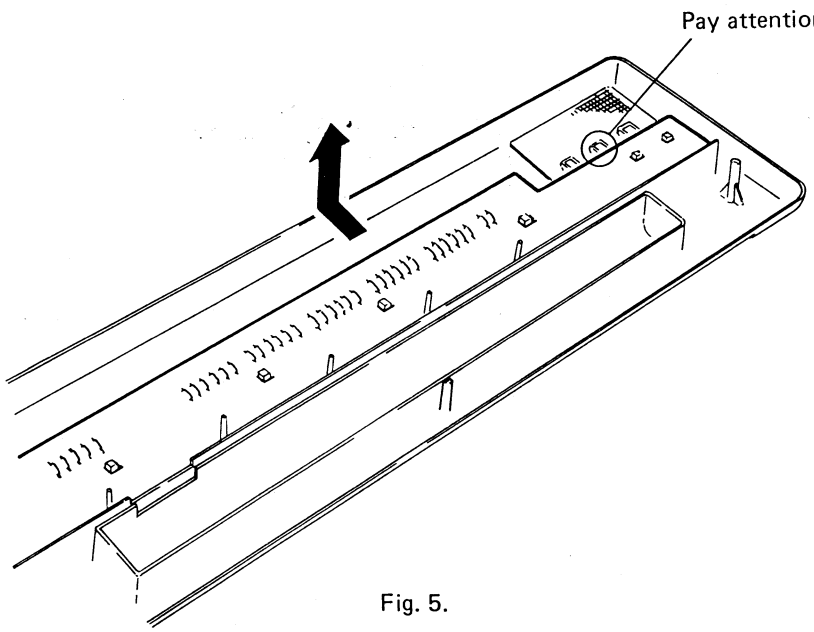


Fig. 5.

5. **Removal of keyboard**
After the circuit board holder and MK circuit board are removed, the key can be removed as shown in Fig. 6.

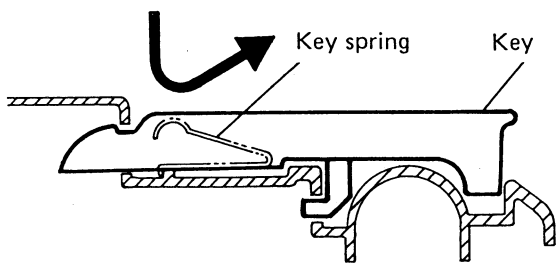


Fig. 6.

6. **Precautions in Assembly.**
1) When installing MK circuit board
○ Make sure that the rubber contact is in correct direction, bringing its black side upward to contact the circuit board.
Match the dowel provided on MK circuit board with the break in the rubber contact.

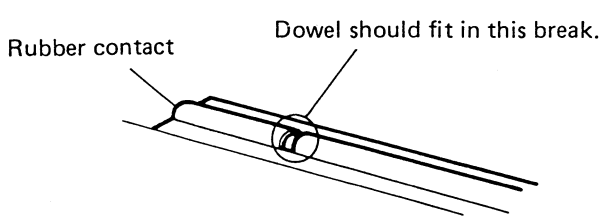


Fig. 7

PS-1
PS-2
PS-3

○ Have MK circuit board caught by the hook securely and fix it with the circuit board holder.

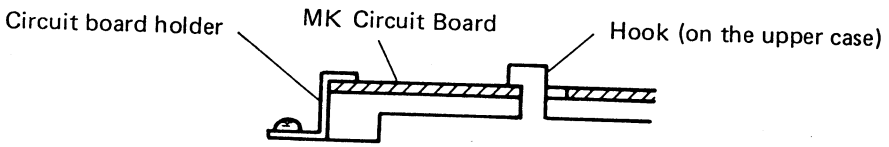


Fig. 8

○ When fixing the circuit board holder with screws, earth terminals of the shield sheet and the main circuit board should be fixed together with that screw.
○ When MK circuit board is installed in position, check each key for smooth mechanical movement.

2) When installing the main circuit board
○ Make sure that the wire harness does not get caught on SW circuit board and main circuit board.
○ AU circuit board (PS-2, 3) should be installed after the main circuit board installation is completed. At this time, be cautious in handling the wire harness.

3) When fitting knobs
○ The red knob is for Master Volume, yellow one is for Auto Rhythm and blue one is for Auto Bass Chord.
○ Set the volume to the maximum (or minimum) position first. Fit the knob by matching the mark on the knob with the maximum (or minimum if the volume is set so) indication on the panel.

7. Setting in the bottom case

When setting the assembled unit in the bottom case, arrange the wire harness around the screw holes properly so that it will not get caught.
Fit the far side of the assembled unit in the case first. After the front side is locked, secure it with screws.

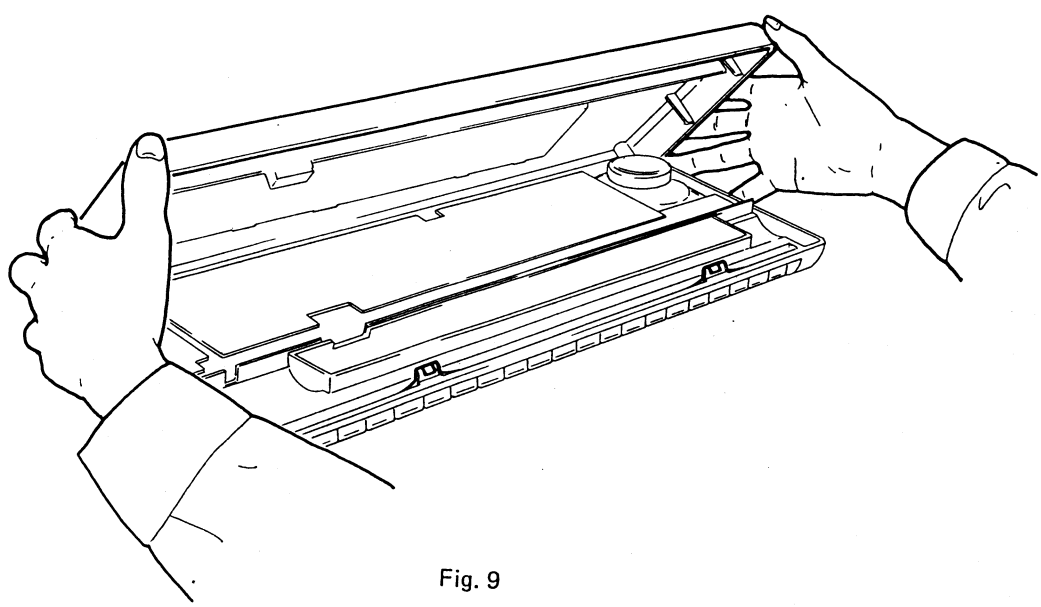


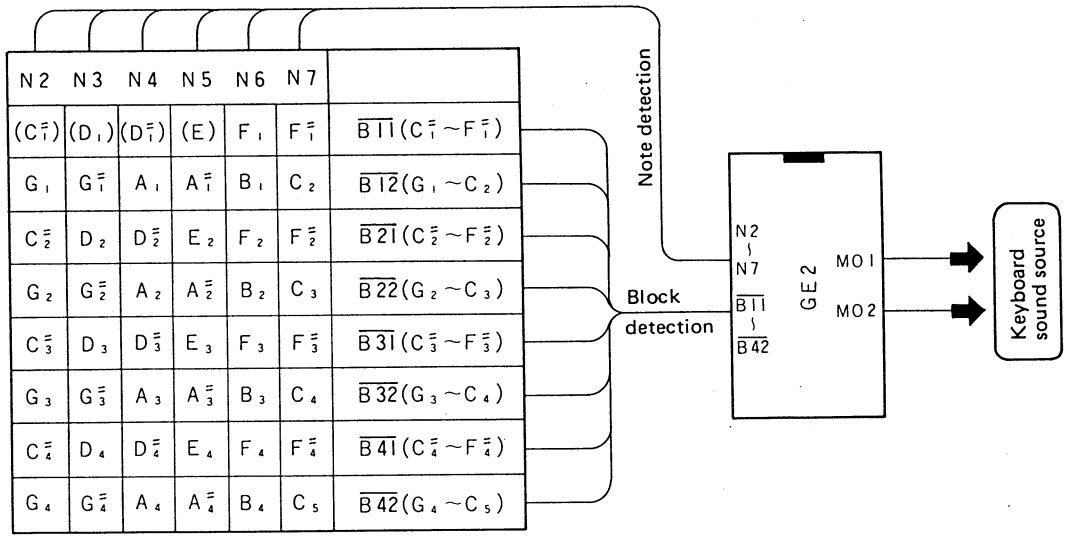
Fig. 9

GE2 (Generator) DESCRIPTION

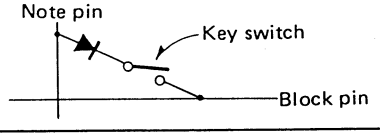
1. Keyboard sound source generation

Keyboard sound source is generated when contact is caused between the note pin and octave block pin by KEY switch and it is output through MO1 and MO2 pins.

1-1. Detection of depressed key



NOTE:



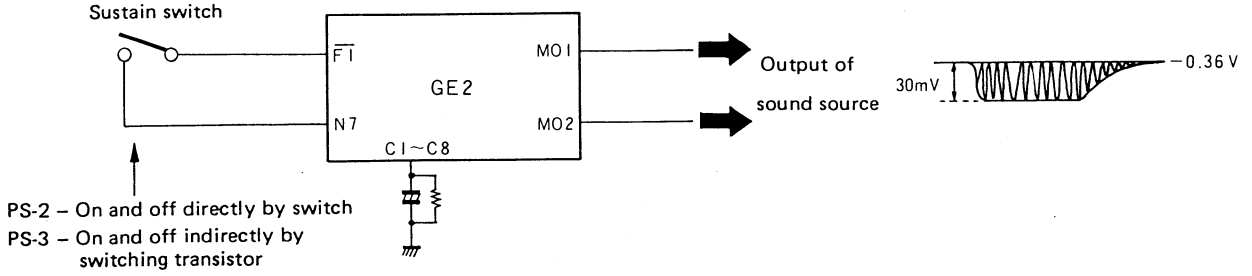
Each key switch is connected to the note pin and octave pin by way of a diode as shown at the left.

GE2 detects the pressed key as each note pin and block pin are contacted as shown above.

1-2. Output of sound source and sustain effect

Sound source signal is output from MO1 and MO2 pins with sustain effect applied.

Whether sustain effect is applied or not is determined by the input data to function pin as mentioned later, and its sustain length is determined by the value of capacitor and resistor connected to C1~ C8 pins.

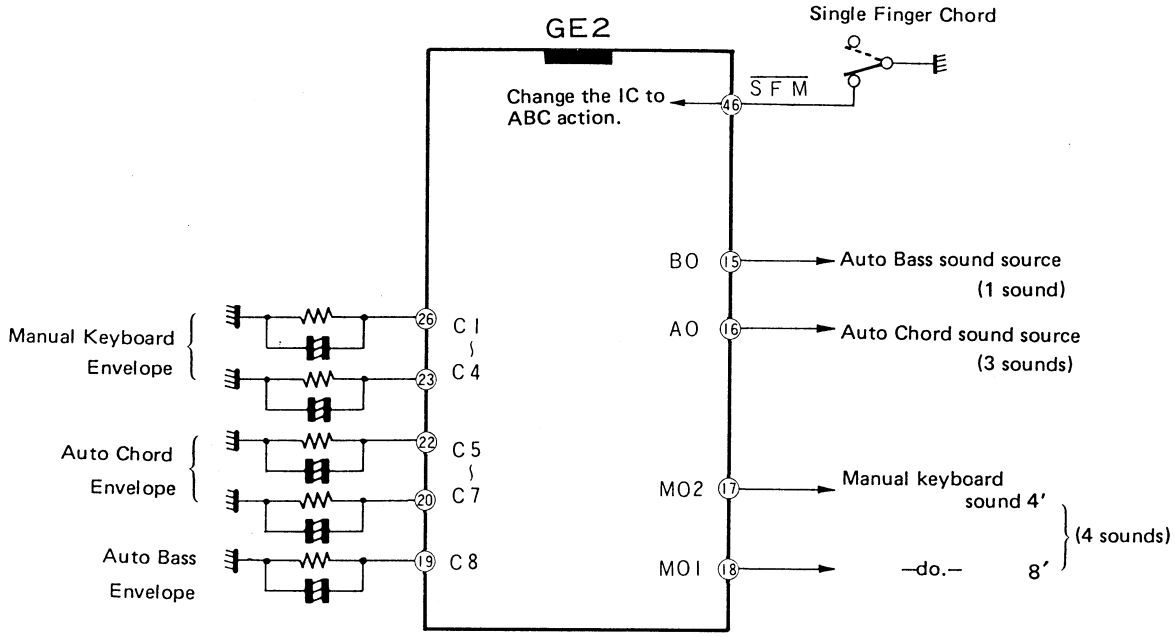


For the sound source signal to be output, a power supply of –2V must be applied, for the signal output is controlled by –2V power supply into –AV pin (No. 13).

PS-1
PS-2
PS-3

2. Generation of Auto Bass Chord

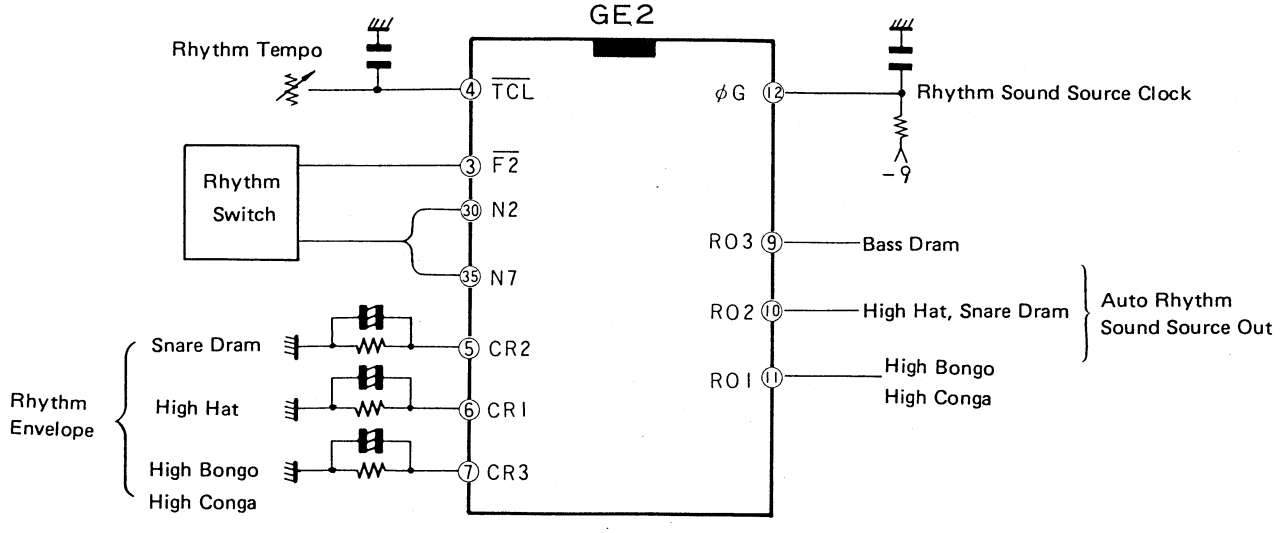
When Auto Bass Chord (single finger chord) is pressed, $\overline{SFM}$ pin in GE2 get 0V and GE2 performs ABC function. During ABC function, each IC functions as follows.



*When Auto Bass Chord is not used, all the envelope control terminals; C1 to C8 of GE2 are used for sound source envelope control of manual keyboard.

3. Generation of Auto Rhythm

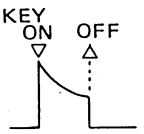
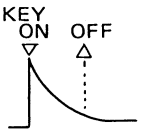
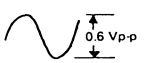
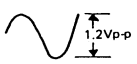
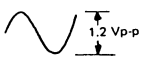
When conductions are caused between rhythm function block pin (F2) and each note pins (N2 ~ N7), the rhythm pattern and start information are detected and rhythm sound source are output from RO1, RO2 and RO3 pins.



4. Function selection circuit

Selection of Auto rhythm function and Orchestra tone is determined within IC according to the contact between $\overline{F1}$ or $\overline{F2}$ and note pins (N2 ~ N7).

4-1. Orchestra tone function

Orchestra Tone Function Block	Note Pin N 2	N 3	N 4	N 5	N 6	N 7
$\overline{F1}$ Envelope Mode	Flute Brass  Normal Mode	String  Normal Mode	Clarinet Organ  Normal Mode	Piano Harpsichord Guitar  Percussive Mode	Vibraphone  Percussive Mode	Sustain
VIBRATO modulation signal VIBO output	 for Vibrato	 for Vibrato	Not Use	Not Use	 for VCA	—

Attack time varies with each of these three normal modes.

Envelope mode and VIBRATO modulation signal output level depends on the combination of $\overline{F1}$ pin and note pin (N2 ~ N7) for contact as given in the above table.

4-2. Rhythm function

Rhythm Function Block	Note Pin N 2	N 3	N 4	N 5	N 6	N 7
$\overline{F2}$	Rhythm Synchro Start	Not Use (Rhythm Start)	Latin	Rock	Swing	Waltz

Contact between $\overline{F2}$ pin and note pins (N2 ~ N7) determines rhythm function. Rhythm pattern is selected according to the combination of $\overline{F2}$ pin and note pins (N2 ~ N7) for contact and rhythm sounds are output from RO1, RO2 and RO3 pins.

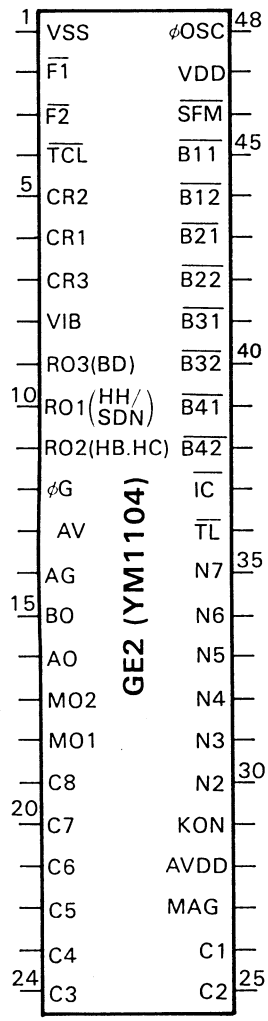
PS-1
PS-2
PS-3

L.S.I. DATA TABLE

Part Name	YM1104	Function Name	GE 2 (Generator 2)

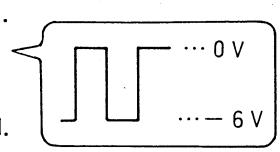
Pin No.	Pin Name	Description
1	VSS	Ground (0V)
2	$\overline{F1}$	Function Block (⇐ Function SW)
3	$\overline{F2}$	Rhythm —do.—
4	$\overline{TCL}$	C.R for tempo clock oscillation
5	CR2	SDN C.R for Rhythm Sound source envelope setting
6	CR1	HH —do.—
7	CR3	HB/HC —do.—
8	VIB	Vibrato data OUT
9	RO3	BD Rhythm sound source OUT
10	RO1	HH/SDN —do.—
11	RO2	HB/HC —do.—
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	AO	Auto Chord sound source OUT
17	MO2	8′ Manual key sound source OUT
18	MO1	8′ + 4′ —do.—
19	C8	C.R for Auto Bass/Manual Key Sound source envelope setting
20	C7	C.R for Auto Chord/Manual Key Sound source envelope setting
21	C6	—do.—
22	C5	—do.—
23	C4	C.R for Manual Key Sound source envelope setting
24	C3	—do.—

Pin No.	Pin Name	Description
48	ϕOSC	Master clock IN (530 kHz)
47	VDD	DC supply (—9V)
46	$\overline{SFM}$	Single Finger Chord ON data IN
45	$\overline{B11}$	F_2, F_2# Octave Block (⇐ Key SW)
44	$\overline{B12}$	G_2~C_3 —do.—
43	$\overline{B21}$	C_3#~F_3# —do.—
42	$\overline{B22}$	G_3~C_4 —do.—
41	$\overline{B31}$	C_4#~F_4# —do.—
40	$\overline{B32}$	G_4~C_5 —do.—
39	$\overline{B41}$	C_5#~F_5# —do.—
38	$\overline{B42}$	G_5~C_6 —do.—
37	$\overline{IC}$	Initial clear IN
36	$\overline{TL}$	Tempo lamp drive pulse IN
35	N7	F#, C Note Block (⇐ Key & Function SW)
34	N6	F, B —do.—
33	N5	A#, E —do.—
32	N4	A, D# —do.—
31	N3	G#, D —do.—
30	N2	G, C# —do.—
29	$\overline{KON}$	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	—do.—



Conditions for basic operation of GE2

1. VSS (1), AG (14), MAG (27) ..... should be 0V.
2. VDD (47), AVDD (28) ..... —9V should be applied.
3. IC (37) ..... —9V should be applied.
4. ϕ OSC (48) ..... should be provided with clock pulse of 531 kHz.

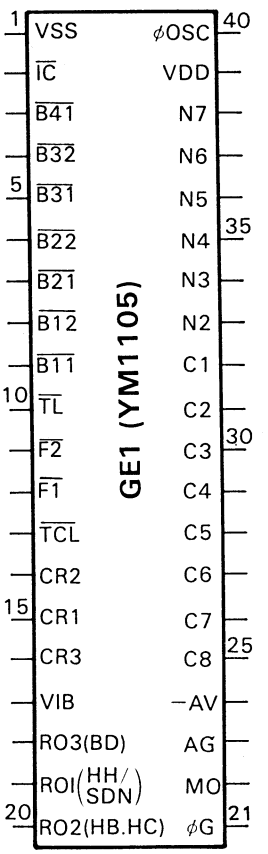


5. —AV (13) ..... —2V should be applied.

Part Name	YM1105	Function Name	GE1 (Generator 1)

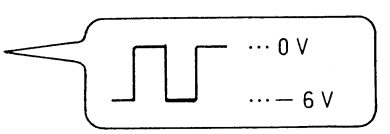
Pin No.	Pin Name	Description
1	VSS	Ground (0V)
2	$\overline{IC}$	Initial Clear IN
3	$\overline{B41}$	C4#~F4# Octave Block
4	$\overline{B32}$	G3~C4 –do.–
5	$\overline{B31}$	C3#~F3# –do.–
6	$\overline{B22}$	G2~C3 –do.–
7	$\overline{B21}$	C2#~F2# –do.–
8	$\overline{B12}$	G1~C2 –do.–
9	$\overline{B11}$	C1#~F1# –do.–
10	$\overline{TL}$	Tempo lamp drive pulse IN
11	$\overline{F2}$	Rhythm Function Block
12	$\overline{F1}$	Orchestratone –do.–
13	$\overline{TCL}$	C.R for Tempo Clock oscillation
14	CR2	SDN C.R for Rhythm Sound source envelope setting
15	CR1	HH –do.–
16	CR3	HB/HC –do.–
17	VIB	Vibrato data OUT
18	RO3	BD Rhythm sound source OUT
19	RO1	HH/SDN –do.–
20	RO2	HB/HC –do.–

Pin No.	Pin Name	Description
40	ϕOSC	Master Clock (531 kHz)
39	VDD	DC supply (–9V)
38	N7	C#, G Note Block
37	N6	C, F# –do.–
36	N5	B, F –do.–
35	N4	A#, E –do.–
34	N3	A, D# –do.–
33	N2	G#, D –do.–
32	C1	C.R for Manual Key Sound source envelope setting
31	C2	–do.–
30	C3	–do.–
29	C4	–do.–
28	C5	–do.–
27	C6	–do.–
26	C7	–do.–
25	C8	–do.–
24	–AV	DC supply for sound source (–2V)
23	AG	Analog GND
22	MO	Manual key sound source OUT
21	ϕG	C.R for Rhythm sound source clock oscillation



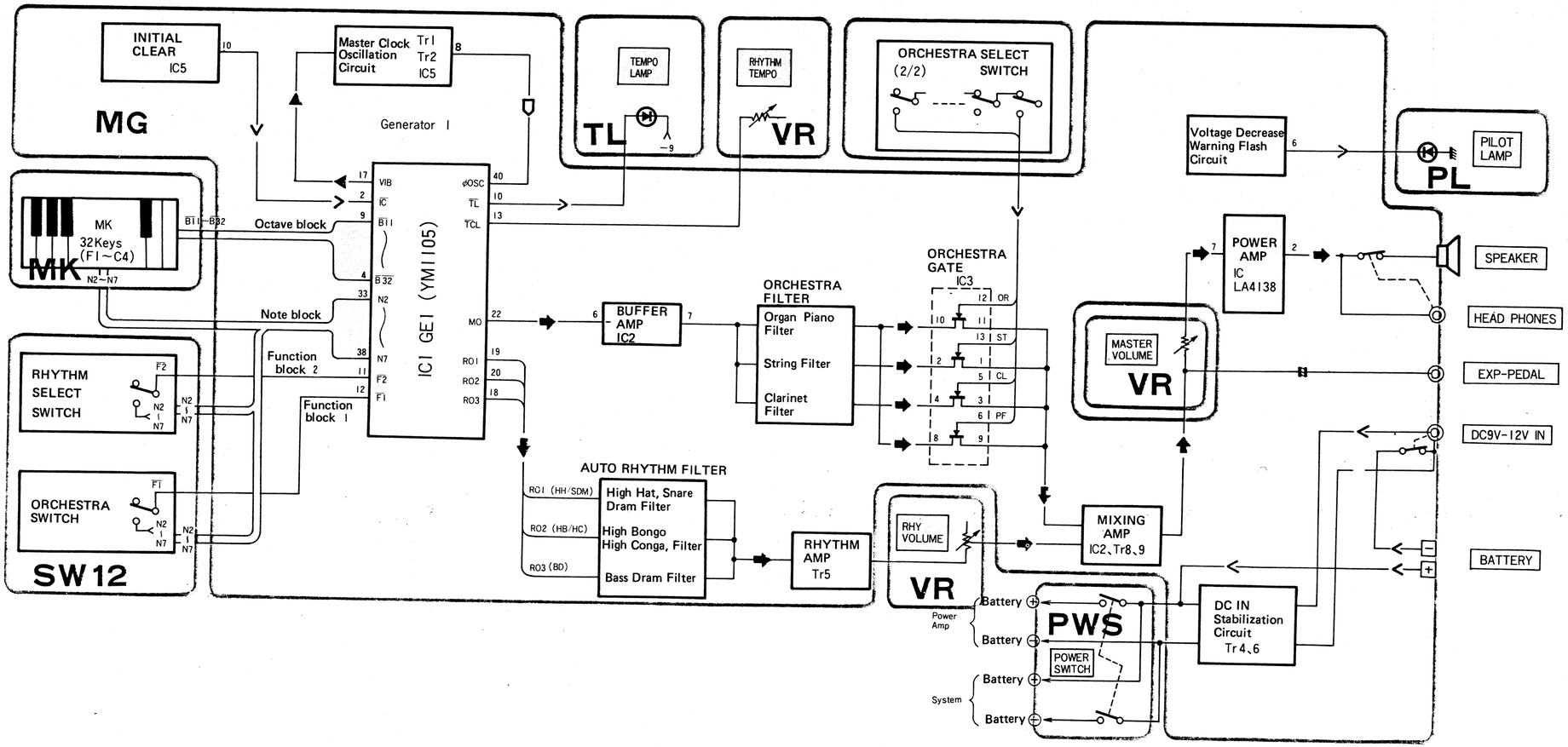
Conditions for basic operation of GE1

1. VSS (1), AG (23) ..... should be 0V.
2. VDD (39) ..... –9V should be applied.
3. IC (2)..... –9V should be applied.
4. ϕ OSC (40) ..... should be provided with clock pulse of 531 kHz.
5. –AV (24) ..... –2V should be applied.

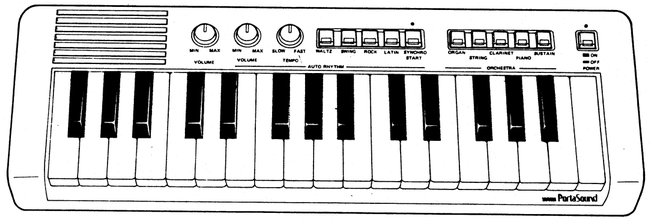


PS-1 Block Diagram, Panel Layout, Unit Layout

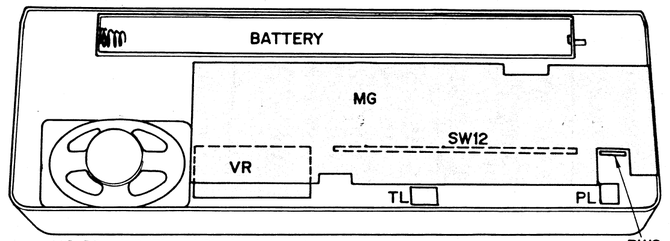
BLOCK DIAGRAM



PANEL LAYOUT



UNIT LAYOUT



MG, PSW, VR, TL and PL circuit boards are divided sections of M12 circuit board.

PS-1 Circuit Boards

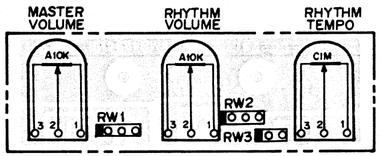
TL(Tempo Lamp) Circuit Board

View from the printed pattern side of the circuit board.

PL(Pilot Lamp) Circuit Board

View from the printed pattern side of the circuit board.

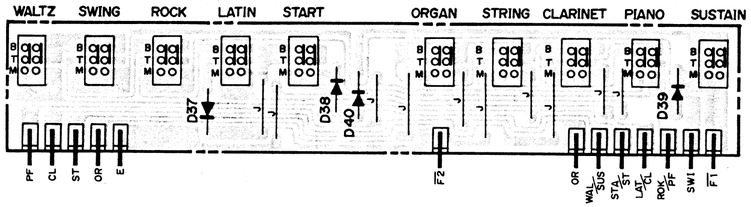
VR(Variable Resistor) Circuit Board



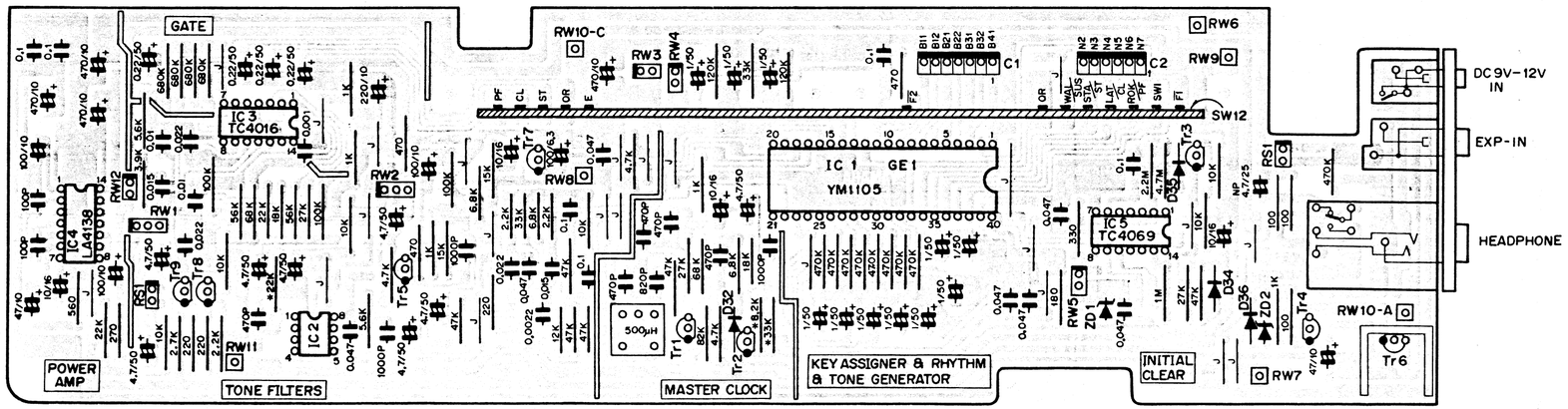
View from the printed pattern side of the circuit board.

SW12(Switch 12) Circuit Board

View from the printed pattern side of the circuit board.

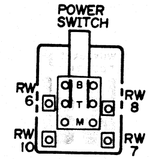


MG(Main Generator) Circuit Board

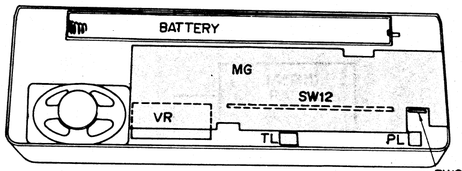


PS-1 Circuit Boards

PWS(Power Switch) Circuit Board

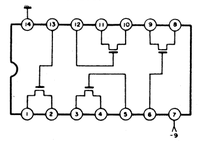


View from the printed pattern side of the circuit board.

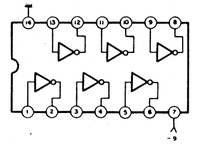


Note)
1. Circuit Board : LC27317
2. IC
   - IC1 : YM1105 (GE1)
   - IC2 : NJM4558 (OP Amp)
   - IC3 : TC4016 (Gate)
   - IC4 : LA4138 (Power Amp)
   - IC5 : TC4069 (INV.)
3. Transistor
   - Tr1 : 2SC752TM
   - Tr2 ~ 5 : 2SC1815
   - Tr6 : 2SD234
   - Tr7 ~ 9 : 2SA733
4. Diode
   - D33 ~ D36 : 1S1555 (D1 ~ D32 ; MK) (D37 ~ D40 ; SW12)
   - ZD1 : WZ061
   - ZD2 : WZ090
   - LED1, 2 : SLC22UR
5. Condenser
   - NP : Non-polar condenser
6. Tr6 heat sink to be mounted.

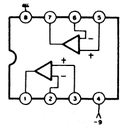
TC4016 (Gate)

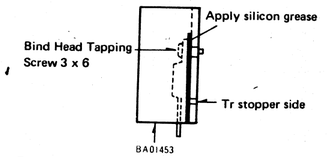


TC4069 (Inverter)



NJM4558 (OP. Amp)





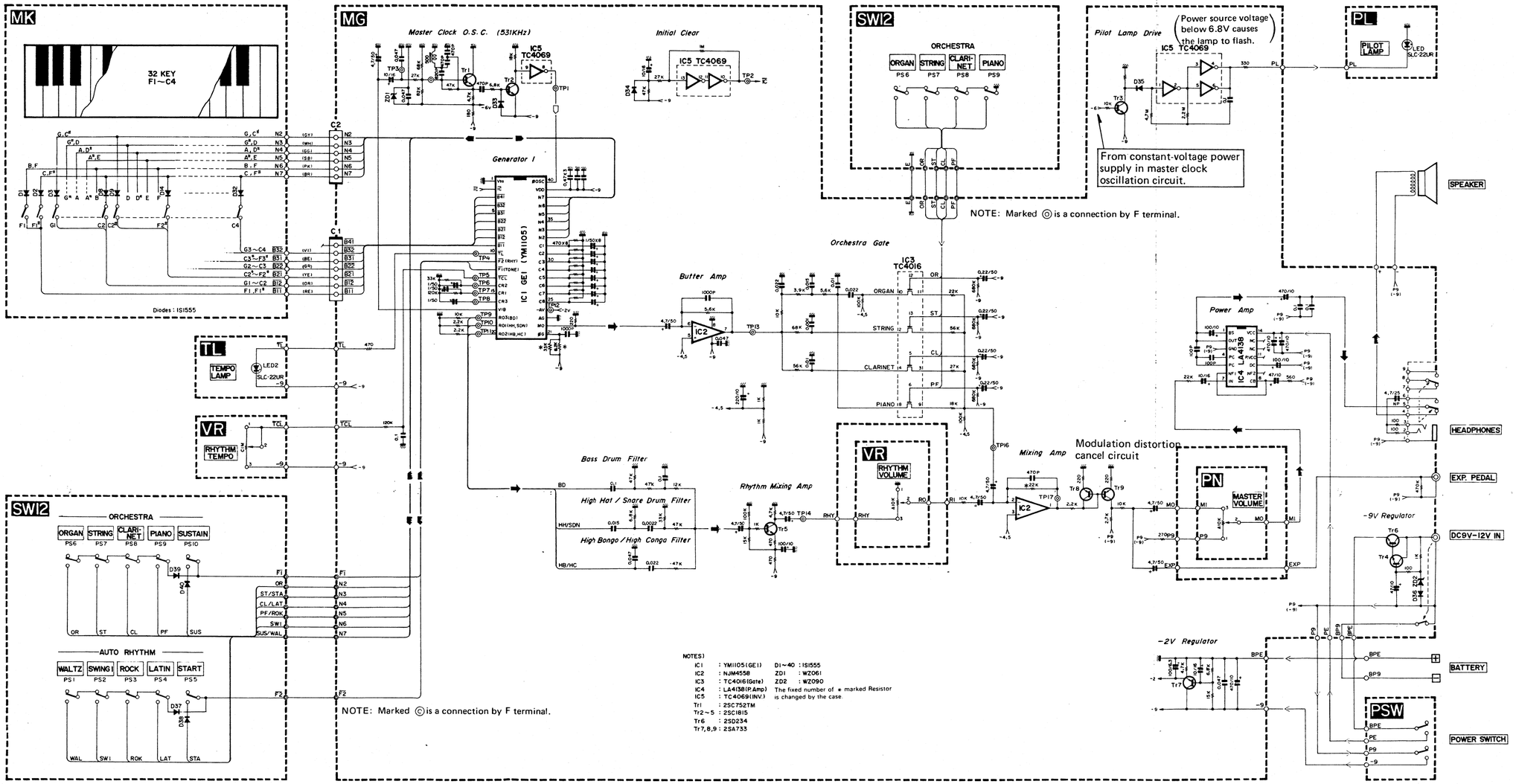
7. The fixed number of * marked Resistor is changed by the case.

SW12 Circuit Board

Note)
1. Circuit Board : LC27461
2. Push switch : KA80226
3. Diode : 1S1555
4. F terminal : LB10038

PS-1 Overall Circuit Diagram 002657

PS-1 Overall Circuit Diagram



- Key code data (possible to measure with an oscilloscope)
- Pulse form (—do.—)
- Trigger pulse (—do.—)
- Audio signal (possible to measure with signal tracer)
- Low frequency modulation signal (possible to measure with VOM)
- DC control (—do.—)
- Clock pulse (possible to measure with an oscilloscope or VOM)

NOTES:

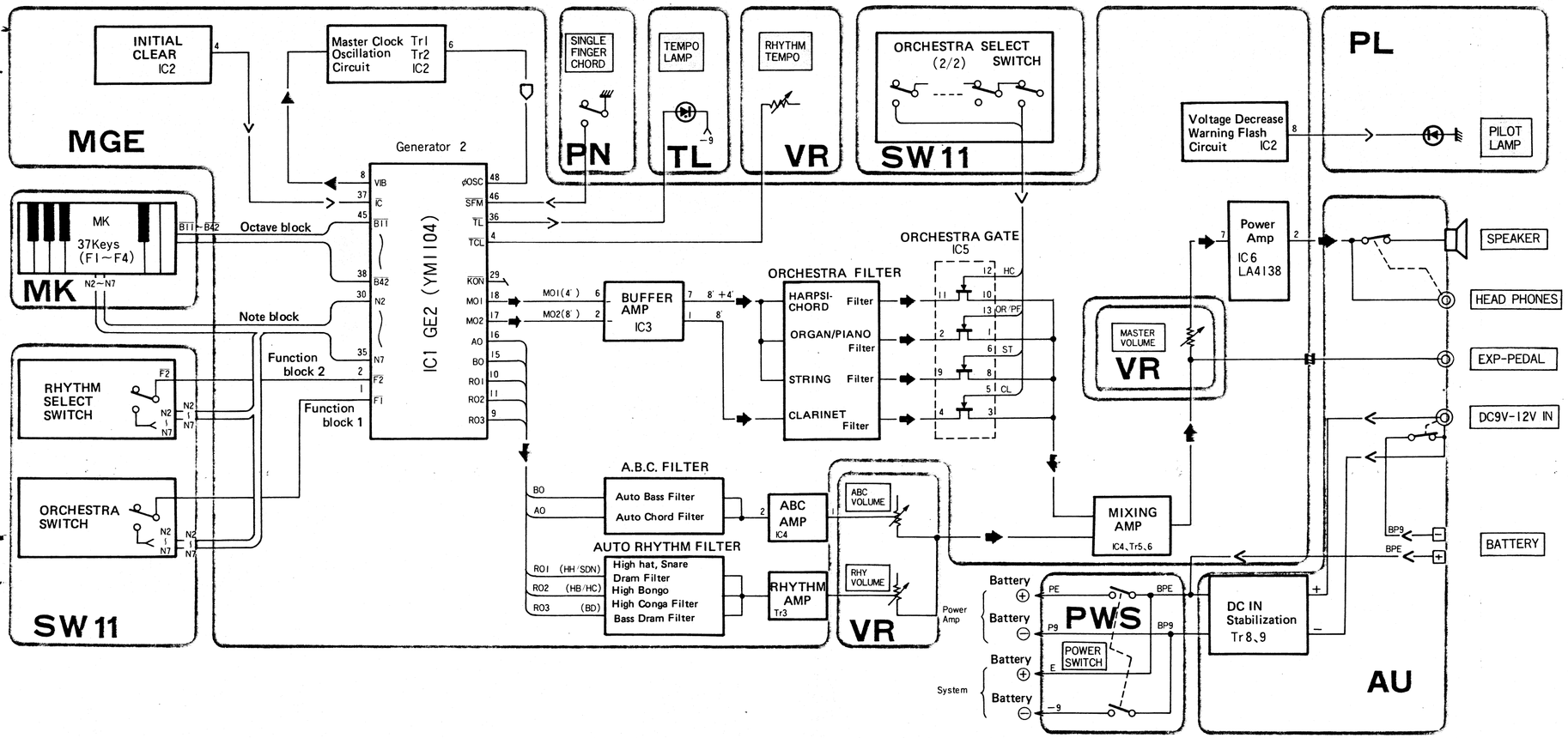
1. All Resistors are 1/4 watt unless other wise specified.
2. All Capacitors are in microfarads unless otherwise specified.
3. All Keyswitches. Tabswitches and Pushbutton Switches shown in "off" position.
4. Capacitors
   - △ mark: Tantalum Capacitor
   - ▲ mark: Solid Aluminium Capacitor
   - ○ mark: Polystyrene Capacitor
   - K mark: Ceramic Capacitor 1000 pF

ABBREVIATIONS OF WIRE COLOR

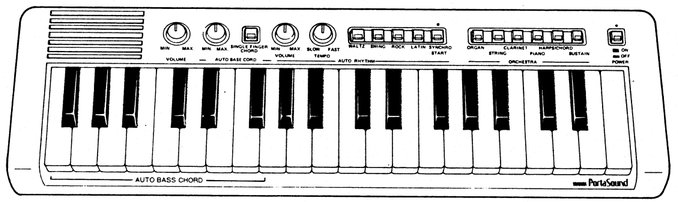
BL	BLACK	GG	GLASS GREEN
YE	YELLOW	OR	ORANGE
GY	GRAY	VI	VIOLET
PK	PINK	SB	SKY BLUE
BR	BROWN	TP	TIN PLATED WIRE
GR	GREEN	TR	TRANSPARENT
WH	WHITE		
RE	RED		
BE	BLUE		

PS-2 Block Diagram, Panel Layout, Unit Layout

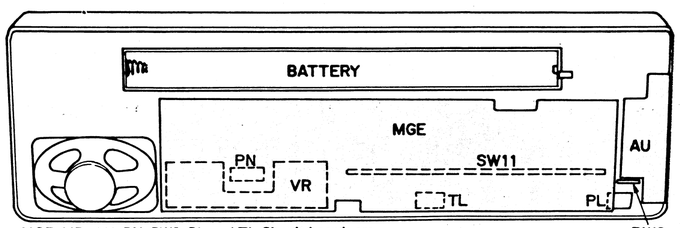
BLOCK DIAGRAM



PANEL LAYOUT



UNIT LAYOUT



MGE, VR, AU, PN, PWS, PL and TL Circuit boards are divided Sections of M11 Circuit Board.

PS-2 Circuit Boards

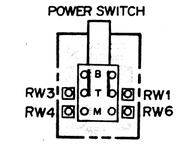
PL(Pilot Lamp)Circuit Board

View from the printed pattern side of the circuit board.

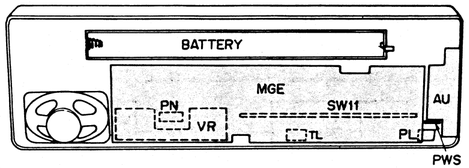
TL(Tempo Lamp)Circuit Board

View from the printed pattern side of the circuit board.

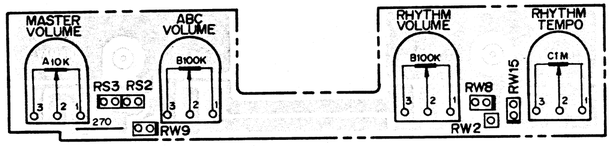
PWS(Power Switch)Circuit Board



View from the printed pattern side of the circuit board.

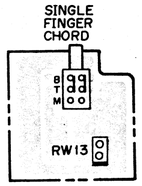


VR(Variable Resistor)Circuit Board



View from the printed pattern side of the circuit board.

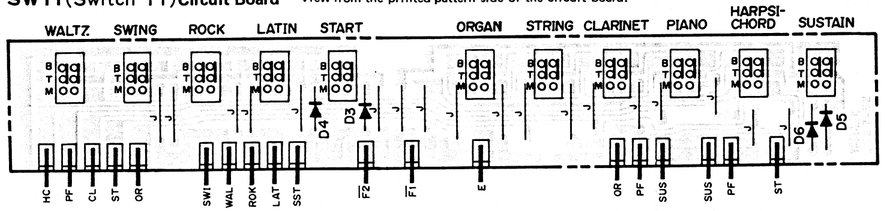
PN(Panel) Circuit Board



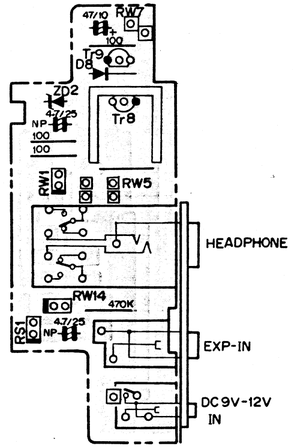
View from the printed pattern side of the circuit board.

SW11(Switch 11)Circuit Board

View from the printed pattern side of the circuit board.

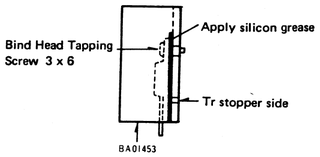


AU(Auxiliary) Circuit Board



View from the printed pattern side of the circuit board.

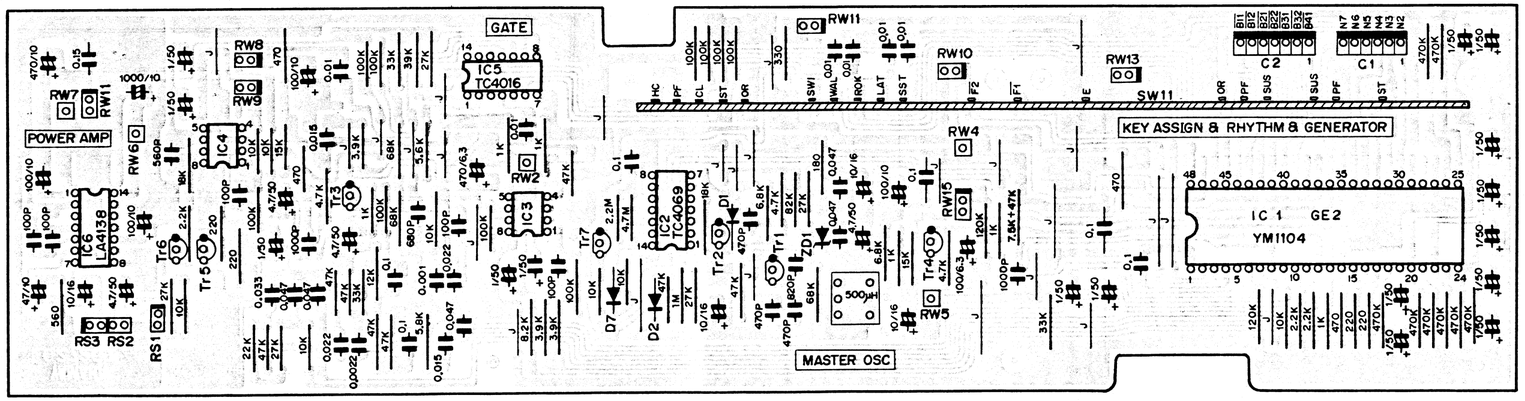
Notes)
1. Circuit Board : LC27267
2. IC
   - IC1 : YM1104 (GE2)
   - IC2 : TC4069 (INV.)
   - IC3, 4 : NJM4558 (OP. Amp)
   - IC5 : TC4016 (Gate)
   - IC6 : LA4138 (Power Amp)
3. Transistor
   - Tr1 : 2SC752
   - Tr2, 3, 7, 9 : 2SC1815
   - Tr4, 5, 6 : 2SA733
   - Tr8 : 2SD234
4. Diode
   - D1 ~ 8 : 1S1555
   - ZD1 : WZ061
   - ZD2 : WZ090
5. Capacitor
   - NP : Non-polar Capacitor
6. LED
   - LED1, 2 : SLC-22UR
7. Tr8 heat sink to be mounted.



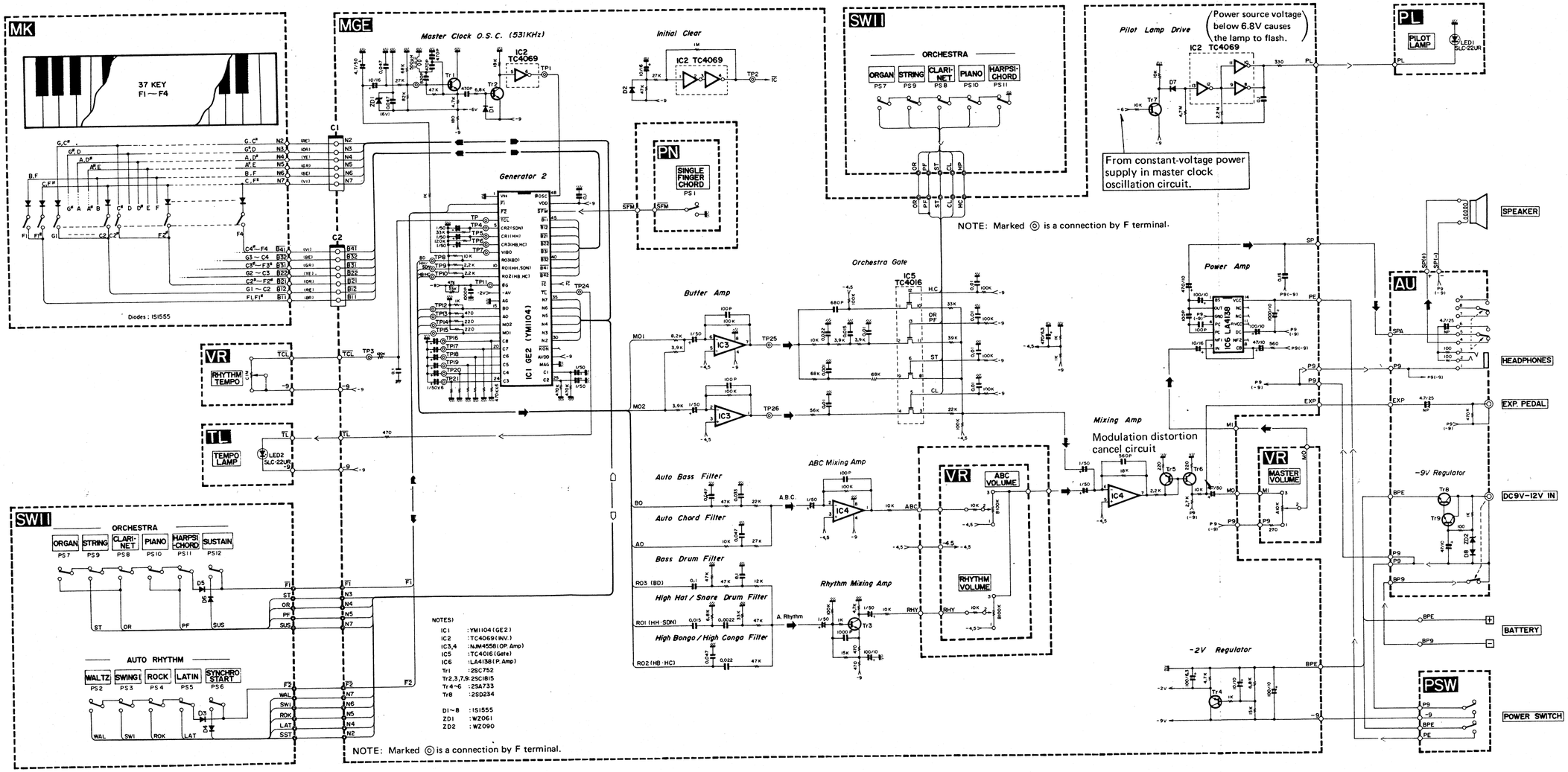
SW11 Circuit Board

Notes:
1. Circuit Board : LC27452
2. SW1 : Push switch 6KEY KA80227
   SW2 : " 5KEY KA80226
3. D3 ~ 6 : 1S1555
4. F terminal : LB10038

MGE(Main Generator)Circuit Board



PS-2 Overall Circuit Diagram 002658



PS-2 Overall Circuit Diagram

—▷— Key code data (possible to measure with an oscilloscope)
—▶— Pulse form (—do.—)
—⌒— Trigger pulse (—do.—)
—▶— Audio signal (possible to measure with signal tracer)
—▶— Low frequency modulation signal (possible to measure with VOM)
—→— DC control (—do.—)
—▷— Clock pulse (possible to measure with an oscilloscope or VOM)

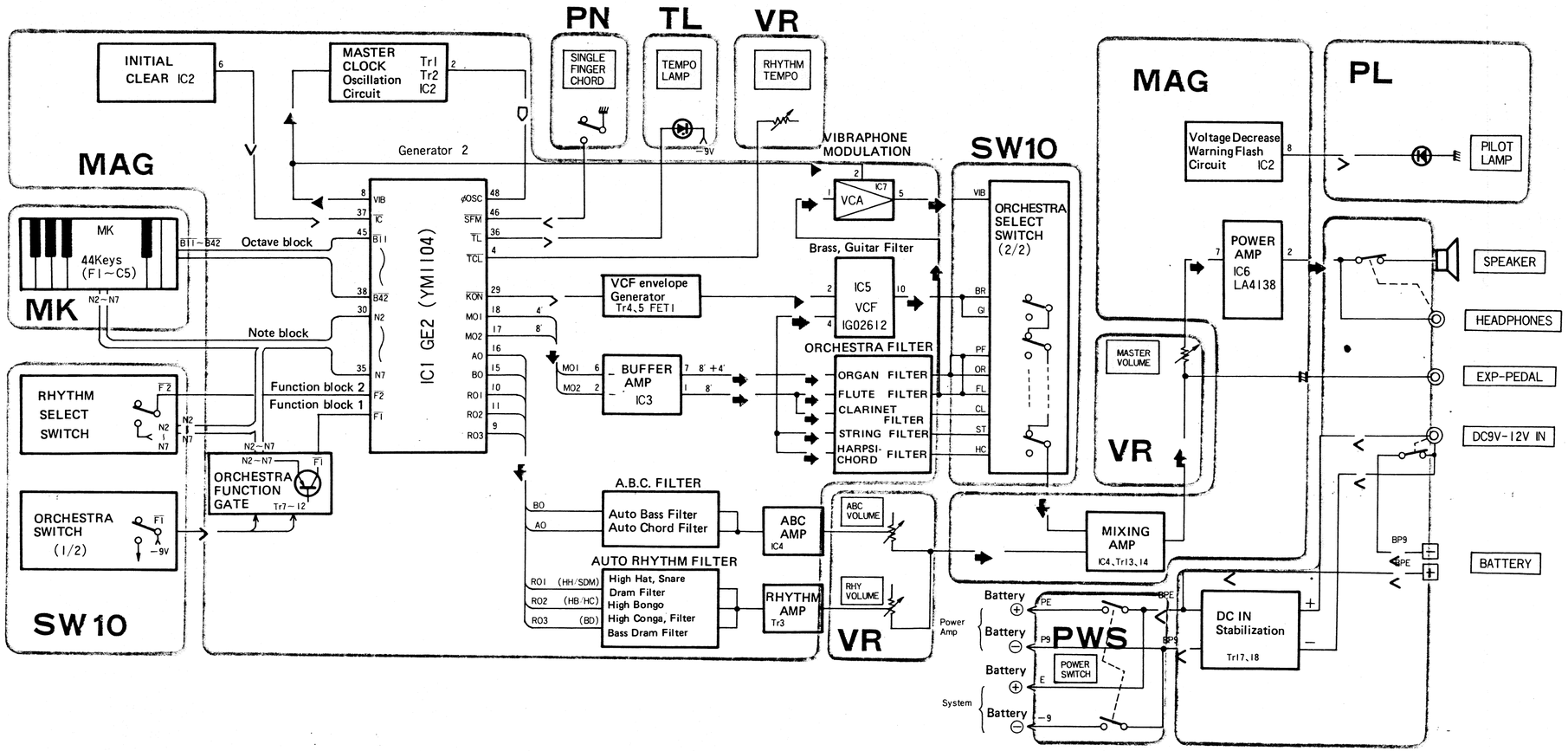
NOTES:
1. All Resistors are 1/4 watt unless other wise specified.
2. All Capacitors are in microfarads unless otherwise specified.
3. All Keyswitches. Tabswitches and Pushbutton Switches shown in "off" position.
4. Capacitors
   △ mark: Tantalum Capacitor
   ▲ mark: Solid Aluminium Capacitor
   ○ mark: Polystyrene Capacitor
   K mark: Ceramic Capacitor 1000 pF

ABBREVIATIONS OF WIRE COLOR

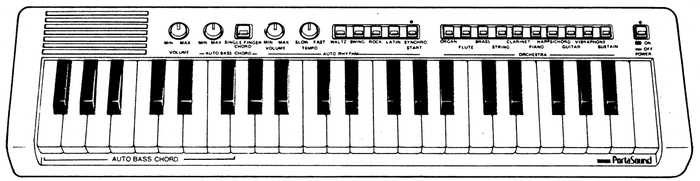
BL	BLACK	GG	GLASS GREEN
YE	YELLOW	OR	ORANGE
GY	GRAY	VI	VIOLET
PK	PINK	SB	SKY BLUE
BR	BROWN	TP	TIN PLATED WIRE
GR	GREEN	TR	TRANSPARENT
WH	WHITE		
RE	RED		
BE	BLUE		

PS-3 Block Diagram, Panel Layout, Unit Layout

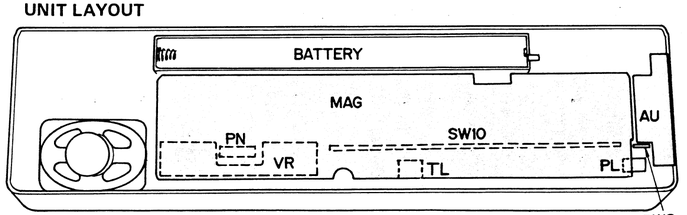
BLOCK DIAGRAM



PANEL LAYOUT



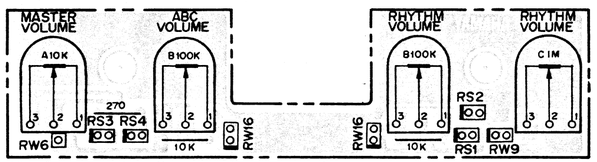
UNIT LAYOUT



MAG, VR, AU, PN, PWS, PL and TL circuit boards are divided Section of M11 circuit board.

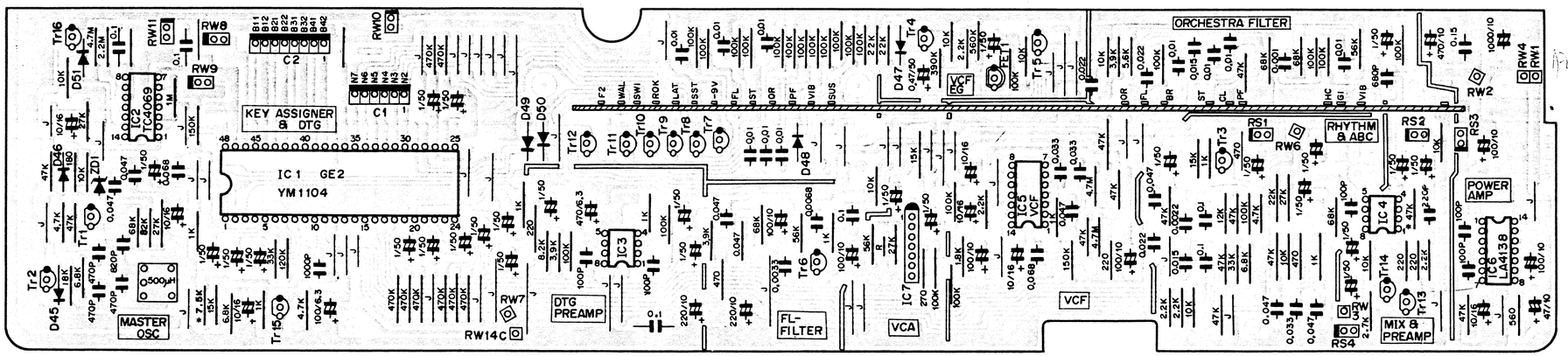
PS-3 Circuit Boards

VR(Variable Resistor) Circuit Board



View from the printed pattern side of the circuit board.

MAG(Main Generator) Circuit Board



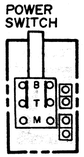
TL(Tempo Lamp) Circuit Board

View from the printed pattern side of the circuit board.

PL(Pilot Lamp) Circuit Board

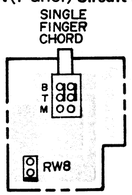
View from the printed pattern side of the circuit board.

PWS(Power Switch) Circuit Board



View from the printed pattern side of the circuit board.

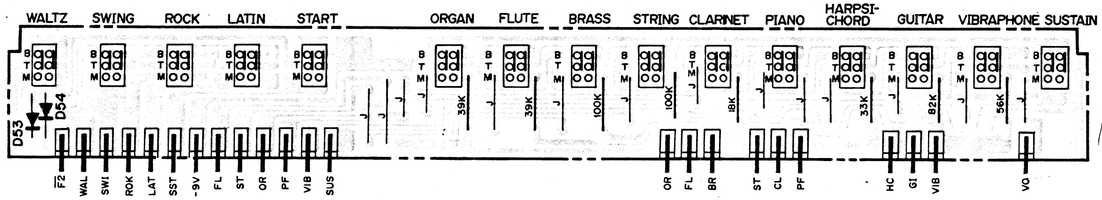
PN(Panel) Circuit Board



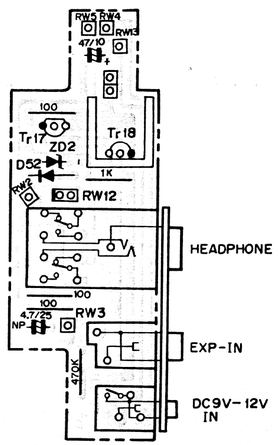
View from the printed pattern side of the circuit board.

SW10(Switch 10) Circuit Board

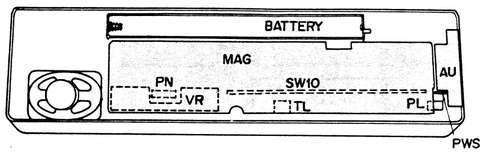
View from the printed pattern side of the circuit board.



AU(Auxiliary) Circuit Board



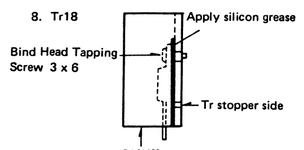
View from the printed pattern side of the circuit board.



Note)
1. Circuit Board : LC27237
2. IC
   - IC1 : YM1104 (GE2)
   - IC2 : TC4069 (INV)
   - IC3, 4 : NJM4558 (OP Amp)
   - IC5 : iG02612 (VCF)
   - IC6 : LA4138 (Power Amp)
   - IC7 : iG02602 (VCA)
3. Transistor
   - Tr1 : 2SC752
   - Tr2~4,6,16,17 : 2SC1815
   - Tr5,7~15 : 2SA733
   - Tr18 : 2SD234
4. FET
   - FET1 : 2SK246(Y)
5. Diode
   - D45~D52 : 1S1555
   - ZD1, 3 : WZ061
   - ZD2 : WZ090
   - LED1, 2 : SLC22UR
6. Capacitor
   - NP mark : Non-polar Capacitor
7. Set "R" in accordance with the following table.

Gain rank	R
K	1.5K
L	3.3K
M	27K

8. Tr18

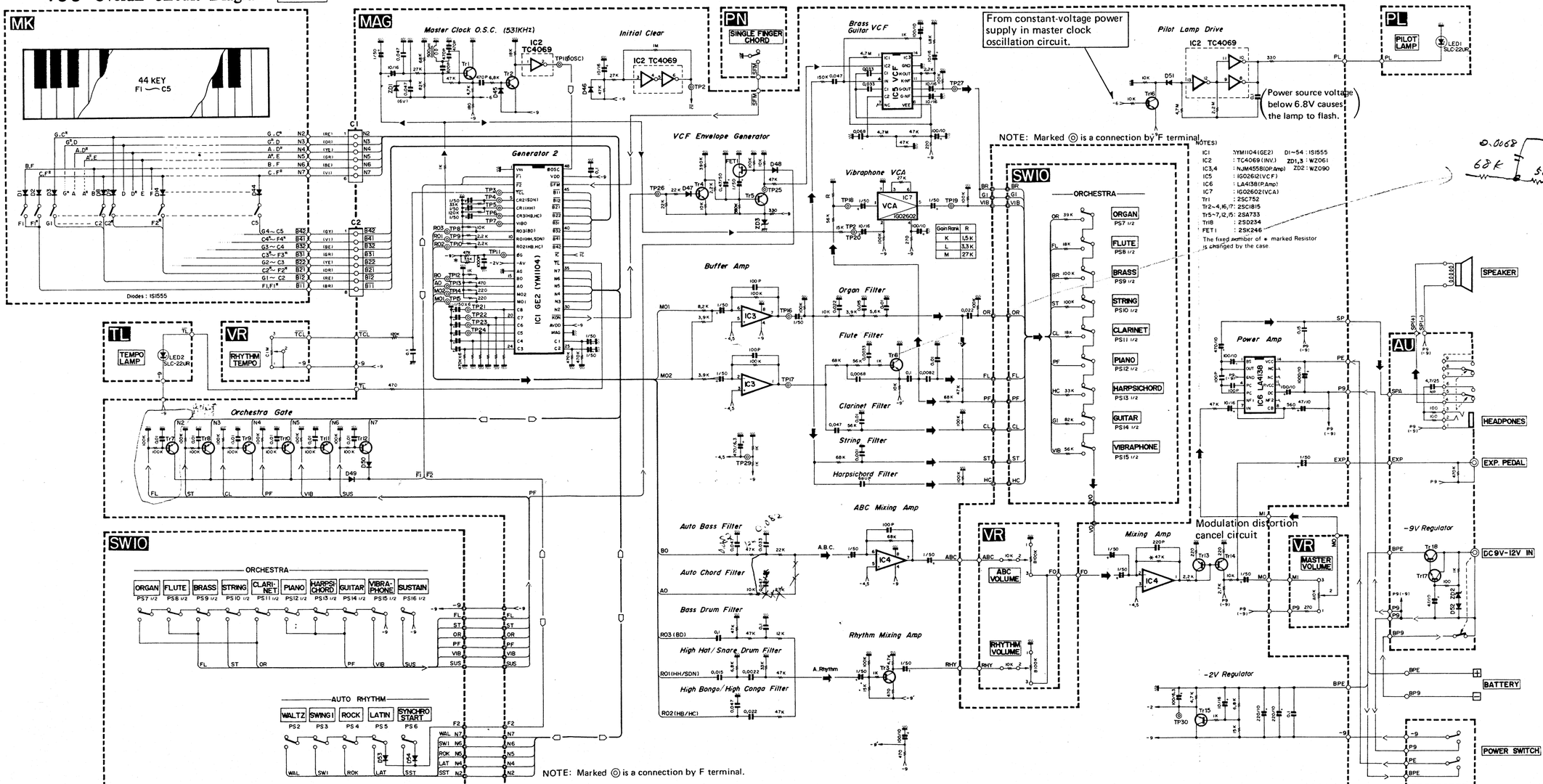


9. The fixed number of * marked Resistor is changed by the case.

SW10 Circuit Board

Note)
1. Circuit Board : LC27440
2. Diode : IS1555
3. SW1 : Push switch 10key : KA80228
   - SW2 : Push switch 5 key : KA80226
4. F terminal : LB10038

PS-3 Overall Circuit Diagram 002659



NOTES)
IC1 : YMI104(GE2) DI~54 : ISI555
IC2 : TC4069(INV.) ZD1,3 : WZ061
IC3,4 : NJM4558(OP.Amp) ZD2 : WZ090
IC5 : IGO2612(VCF)
IC6 : LA4138(P.Amp)
IC7 : IGO2602(VCA)
Tr1 : 2SC752
Tr2~4,16,17 : 2SC1815
Tr5~7,12,15 : 2SA733
Tr18 : 2SD234
FET1 : 2SK246
The fixed number of * marked Resistor is changed by the case.

Gain Rank R
K 15K
L 3.3K
M 27K

Diodes : ISI555

- Key code data (possible to measure with an oscilloscope)
- Pulse form (—do.—)
- Trigger pulse (—do.—)
- Audio signal (possible to measure with signal tracer)
- Low frequency modulation signal (possible to measure with VOM)
- DC control (—do.—)
- Clock pulse (possible to measure with an oscilloscope or VOM)

NOTES:
1. All Resistors are 1/4 watt unless other wise specified.
2. All Capacitors are in microfarads unless otherwise specified.
3. All Keyswitches, Tabswitches and Pushbutton Switches shown in "off" position.
4. Capacitors
   - △ mark: Tantalum Capacitor
   - ▲ mark: Solid Aluminium Capacitor
   - ○ mark: Polystyrene Capacitor
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ABBREVIATIONS OF WIRE COLOR

BL	BLACK	GG	GLASS GREEN
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GY	GRAY	VI	VIOLET
PK	PINK	SB	SKY BLUE
BR	BROWN	TP	TIN PLATED WIRE
GR	GREEN	TR	TRANSPARENT
WH	WHITE		
RE	RED		
BE	BLUE		

PS-3 Overall Circuit Diagram