

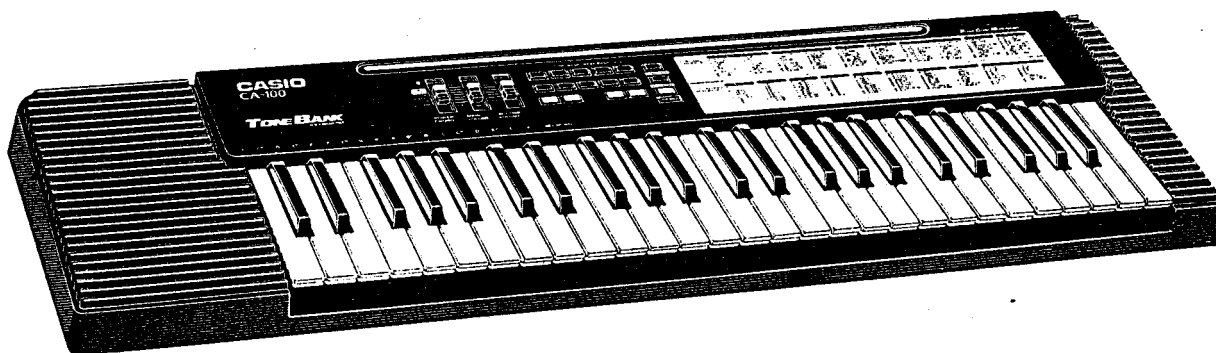
SERVICE MANUAL

& PARTS LIST (without price)

ELECTRONIC KEYBOARD

CA-100

APR. 1990



CA-100

CASIO®

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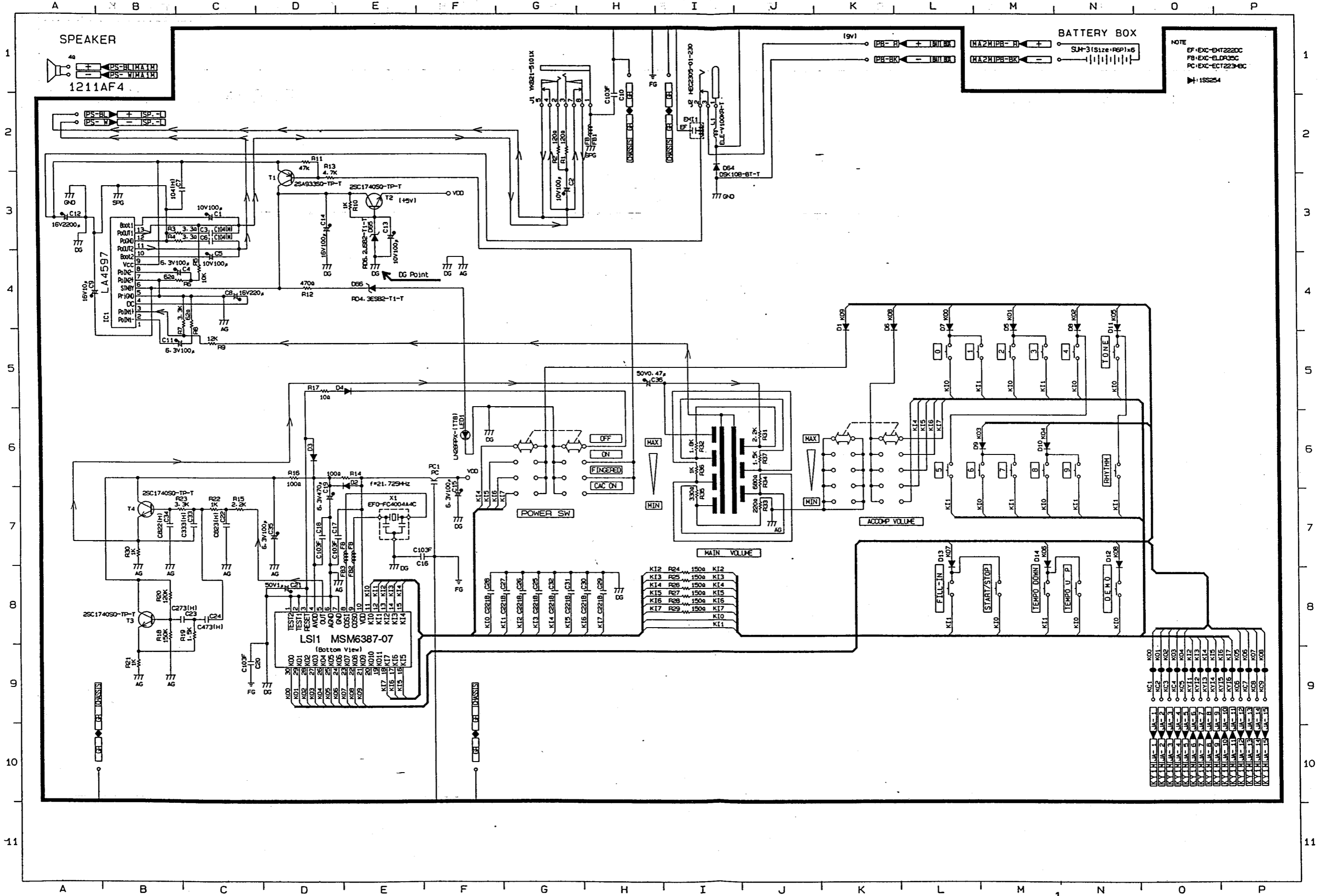
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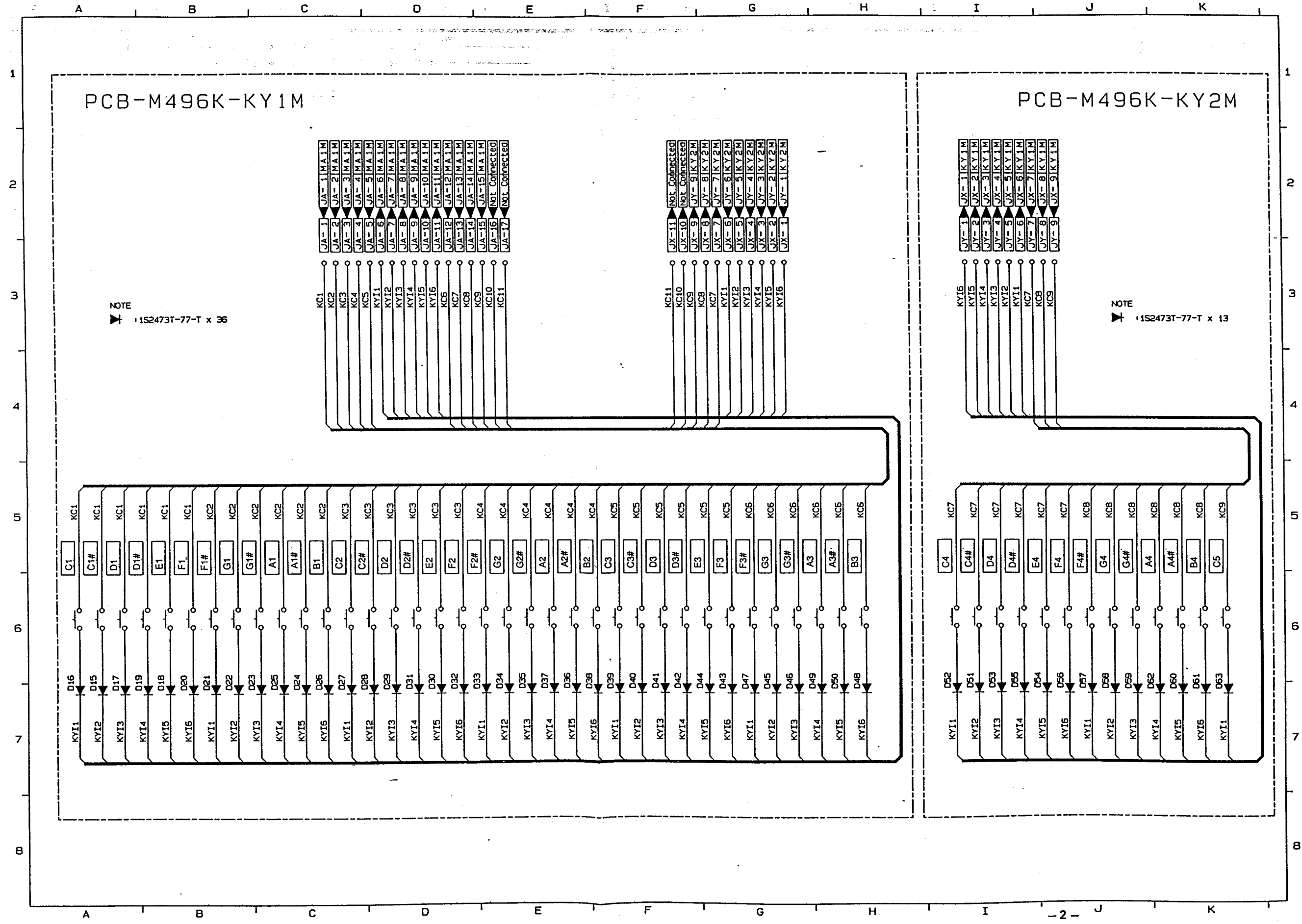
SCHEMATIC DIAGRAM

Main PCB M4500-MA1M

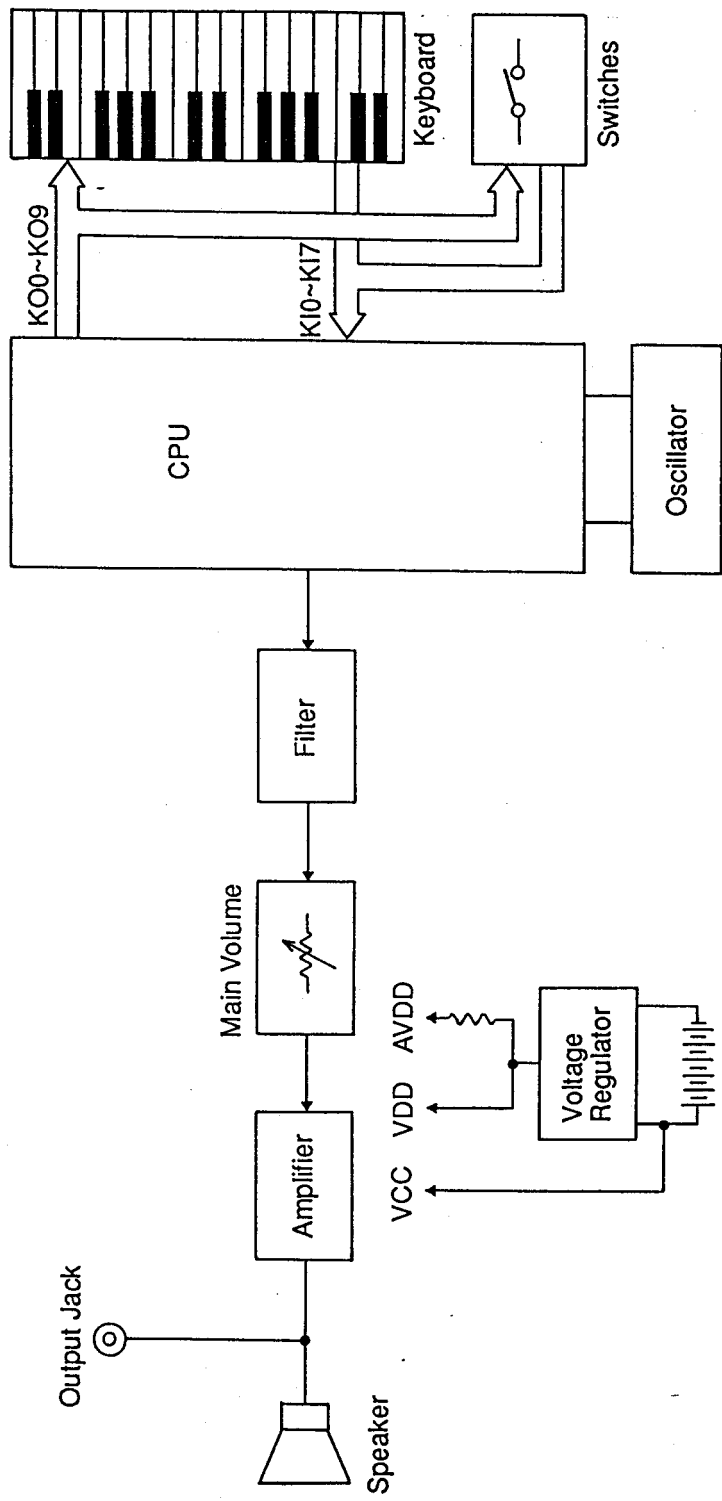


NOTE
 EF: EXC-D4T222DC
 FB: EXC-ELDR35C
 PC: EXC-ECT2234C
 1SS254

Keyboard PCBs M4500-KY1M, KY2M



BLOCK DIAGRAM

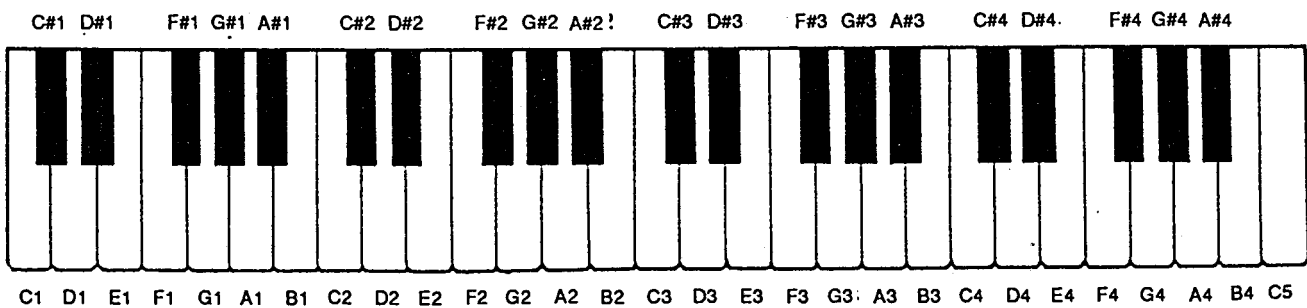


CIRCUIT DESCRIPTION

Key and Switch Matrix

	KI0(KYI1)	KI1(KYI2)	KI2(KYI3)	KI3(KYI4)	KI4(KYI5)	KI5(KYI6)	KI6(KYI7)	KI7(KYI8)
KO0 (KC1)	0	1	C1	C#1	D1	D#1	E1	F1
KO1 (KC2)	2	3	F#1	G1	G#1	A1	A#1	B1
KO2 (KC3)	4	5	C2	C#2	D2	D#2	E2	F2
KO3 (KC4)	6	7	F#2	G2	G#2	A2	A#2	B2
KO4 (KC5)	8	9	C3	C#3	D3	D#3	E3	F3
KO5 (KC6)	TONE	RHYTHM	F#3	G3	G#3	A3	A#3	B3
KO6 (KC7)	TEMPO UP	TEMPO DOWN	C4	C#4	D4	D#4	E4	F4
KO7 (KC8)	START/ STOP	FILL-IN	F#4	G4	G#4	A4	A#4	B4
KO8 (KC9)	DEMO		C5	C#5	D5	D#5	E5	F5

Nomenclature of Keys



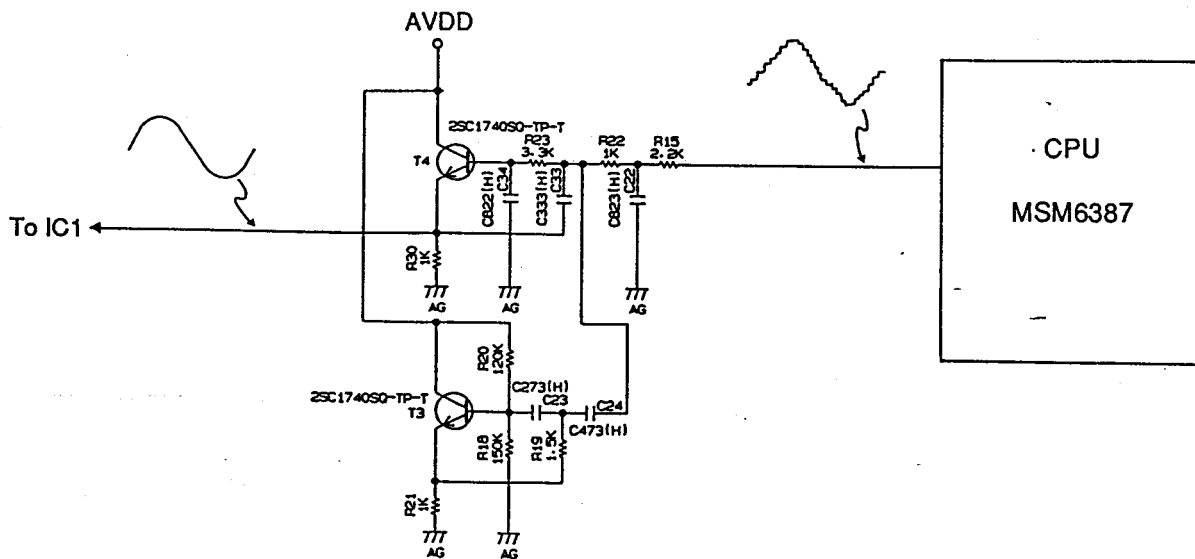
CPU (MSM6387)

The CPU contains sound data ROM and DAC (Digital to Analog Converter), and provides sound waveform in accordance with the pushed key and the selected tone. The following table shows pin function of the LSI.

Pin No.	Terminal	In/Out	Pin Function
1, 2	TEST1, TEST2	—	Not used. Connected to the ground.
3	RESET	In	Power ON reset terminal. When the power switch is turned on, the terminal receives Low level signal and the internal circuits of the LSI are initiated.
4	AVDD	In	+5V source for the built-in DAC
5	OUT	Out	Sound waveform output
6	AGND	In	Ground (0V) source for the built-in DAC
7	GND	In	Ground (0V) source
8, 9	COSI, COSO	In/Out	21.725 MHz clock pulse input/output
10	VDD	In	+5V source
11~18	KI0~KI7	In	Input terminals from keys and switches
19~20	KO11~KO10	—	Not used
21~30	KO9~KO0	Out	Key and switch scan signals output

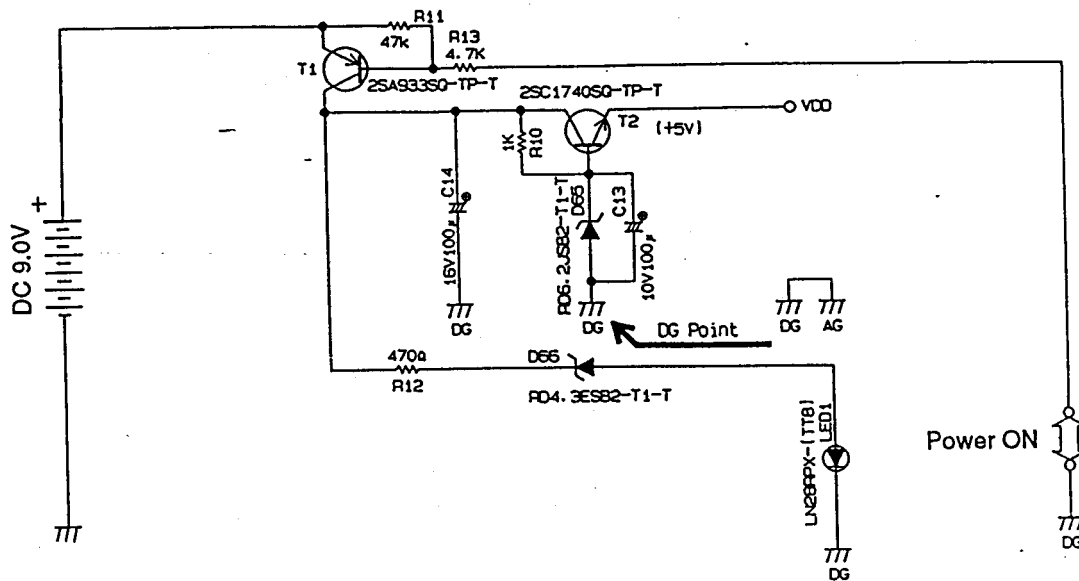
Filter Block

Since the sound signal from the CPU is a stepped waveform, the filter block smoothes the waveform.



Voltage Regulator

Voltage VDD (+5V) is regulated by transistors T1 and T2 and, zener diode RD65. When power switch is turned off, transistor T1 turn off cutting voltage VDD off.



Troubleshooting

Trouble	Possible Block	Treatment
Power LED does not light	Batteries or DC 9 V Jack	Check voltages of batteries or jack connection.
	Power Supply Circuit	Check voltage at transistor T1 and T2.
	Power Switch	Power switch may not be contacting.
No sound at all	Oscillator X1	Pins 8 and 9 of the CPU should receive oscillation signal.
	CPU (MSM6387)	Pins 21~30 should provide pulses.
		Pin 5 should output a waveform when keys are pushed.
Power Amplifier (LA4597)	Check output signals of pin 11 and 13 or +9 V DC source.	
Certain key(s) or switch(es) do(es) not work.	Key or Switch Contact	Dirty key contact points or poor soldering of diodes.
	Open Circuit of KC or KI Lines	
Distorted sound	Batteries	Check voltages of batterieis.
	Power Amplifier (LA4597)	Check output signals of pin 11 and 13 or +9 V DC source.

PARTS LIST

CA-100

- Notes:**
1. Prices and specifications are subject to change without prior notice.
 2. As for spare parts order and supply, refer to the "GUIDEBOOK for Spare Parts Supply", published separately.
 3. The numbers in item column correspond to the same numbers in drawing.

Item	Code No.	Parts Name	Spec. No.	Q	*	FOB Japan N. R. Yen Unit Price	R N K	
MA1M PCB ASS'Y								
O*	2010	LSI	MSM6387-07	1			A	I
O*	2114 1820	Monolithic IC	LA4597	1			A	B
	2250 0133	Transistor	2SA933SS-TP-T	1	10		A	A
	2220 1387	Transistor	2SC1740SQ-TP-T	3	10		A	A
	2301 0241	Diode	1SS254T-77-T	14	20		C	A
	2390 0371	Diode	DSK10B-BT-T(=1SR139-100T-3	1	20		C	A
	2310 7848	Zener diode	RD4.3ESB2-T1-T	1	20		C	A
	2310 7961	Zener diode	RD6.2JSB2-T1-T	1	20		C	A
	2370 0112	LED	LN28RPX-(TTB)	1	20		C	A
	2590 0742	Ceramic oscillator	EFO-GC2175C3	1	5		C	B
	2617 0360	Carbon film resistor	R-20-1.5K-J-T24-T	2	20		C	A
	2617 0265	Carbon film resistor	R-20-10-J-T24-T	1	20		C	A
	2617 0028	Carbon film resistor	R-20-100-J-T24-T	2	20		C	A
	2617 0052	Carbon film resistor	R-20-1K-J-T24-T	5	20		C	A
	2617 0036	Carbon film resistor	R-20-220-J-T24-T	1	20		C	A
	2606 0315	Carbon film resistor	R-20-3.3-J-T24-T	2	20		C	A
	2617 0249	Carbon film resistor	R-20-470-J-T24-T	1	20		C	A
	2617 0061	Carbon film resistor	R-20-2.2K-J-T24-T	2	20		C	A
	2617 0117	Carbon film resistor	R-20-47K-J-T24-T	1	20		C	A
	2617 0386	Carbon film resistor	R-20-330-J-T24-T	1	20		C	A
	2617 0211	Carbon film resistor	R-20-120-J-T24-T	2	20		C	A
	2617 0238	Carbon film resistor	R-20-680-J-T24-T	1	20		C	A
	2617 0192	Carbon film resistor	R-20-1.8K-J-T24-T	1	20		C	A
	2617 0095	Carbon film resistor	R-20-10K-J-T24-T	1	20		C	A
	2617 0246	Carbon film resistor	R-20-12K-J-T24-T	1	20		C	A
O*	2606 0868	Carbon film resistor	R-20-62-J-T24-T	2	20		C	A
	2617 0220	Carbon film resistor	R-20-150-J-T24-T	6	20		C	A
	2617 0087	Carbon film resistor	R-20-4.7K-J-T24-T	1	20		C	A
	2617 0079	Carbon film resistor	R-20-3.3K-J-T24-T	2	20		C	A
	2617 0150	Carbon film resistor	R-20-150K-J-T24-T	1	20		C	A
	2617 0262	Carbon film resistor	R-20-120K-J-T24-T	1	20		C	A
	2807 1139	Electrolytic capacitor	50RE2-R47-T2-T	1	20		C	A
	2805 2261	Electrolytic capacitor	16RE2-2200-S1	1			C	B
	2805 3142	Electrolytic capacitor	16RE2-10-T2-T	1	20		C	A
	2807 1112	Electrolytic capacitor	10RE2-100-T2-T	4	20		C	A
	2807 1091	Electrolytic capacitor	6.3RE2-100-T2-T	4	20		C	A
	2807 1023	Electrolytic capacitor	50RE2-1-T2-T	1	20		C	A
	2807 1040	Electrolytic capacitor	6.3RE2-470-T2-T	1	10		C	A
	2807 0985	Electrolytic capacitor	16RE2-220-T2-T	1	20		C	A
	2807 1082	Electrolytic capacitor	16RE2-100-T2-T	1	10		C	A
O*	2813 0658	Semiconductive capacitor	RT-C50TKYR822K-T	1	20		C	A
	2813 1939	Semiconductive capacitor	RT-B70TKYR473K-T	1	20		C	A
	2813 1925	Semiconductive capacitor	RT-B70TKYR333K-T	1	20		C	A
	2813 1953	Semiconductive capacitor	RT-B90TKYR823K-T	1	20		C	A
	2813 1302	Semiconductive capacitor	RT-B90TKYR104K-T	1	20		C	A
O*	2813 1764	Semiconductive capacitor	DD405SR273K16-T	1	20		C	A
	3790 2195	Terminal plate B	CT-00160C	1	10		C	A
	2818 0390	Ceramic capacitor	RT-HE40TKYB221K-T	8	20		C	A
	2818 2082	Ceramic capacitor	RT-HE70TKYF103Z-T	5	20		C	A
	2830 6229	Mylar capacitor	AMZV-104K50-T	2	20		C	A
	2845 0280	Ferrite beads	EXC-ELDR35C	3	20		C	A
	2845 0588	Three polarity capacitor	EXC-ECT223MBC	1	10		C	A
	3025 0203	EMI filter	EXC-EMT222DC	1	10		C	A

Notes: O* - New parts
 Qty - Quantity used per unit
 * - Minimum order and supply quantity

Rank A: Essential
 B: Stock recommended
 C: Others
 X: No stock recommended

Item	Code No.	Parts Name	Spec. No.	Q	*	FOB Japan N. R. Yen Unit Price	R N K	
	3501 3717	DC jack	HEC2305-01-250	1			C	A
	3501 4375	Jack	YKB21-5101X	1	5		C	B
	3841 0539	Inductor	ECE-V100KR-T	1	10		C	A
O*	6918 2480	Heat sink 500	M411306-1	1	10		X	C
O*	4317 1600	Blank PCB M4500-MA1M	M110795-1	1			X	
KY1M/2M PCB ASS'Y								
	2301 0101	Diode	1S2473-T-77-T	49	20		C	A
	3725 2030	PC Joiner MASKX	JSF50-9-140	1	10		C	A
O*	3725 2282	PC Joiner M500A	JSF50-15-230M	1	5		C	B
O*	4317 1610	Blank PCB M496K-KY1M	M110799-1	1			X	B
O*	4317 1621	Blank PCB M496K-KY2M	M210939A-1	1	5		X	B
UPPER CASE BLOCK								
1	3831 0140	Speaker	1211AF4	1			B	J
2	6909 7380	SL contact 9D	CSB-09D	3	20		C	A
O*	3719 2604	Ribbon cable	DF0H02290-35358035	1	20		C	A
30*	6917 4453	TAC31	M110603C-1	1			C	C
40*	6917 4463	TAC18	M110605C-1	1			C	B
50*	6918 1820	Slide knob 500	M311147-1	3	20		C	A
6	6918 1920	Rubber button 500	M311118-1	1			C	B
70*	6918 1971	Panel sub ass'y	M210937A*1	1			C	F
8	6345 2238	Battery spring A-G-55	A42606B-1	1	10		C	A
9	6912 2630	Battery spring 120	M42382-1	1	10		C	A
100*	6917 4972	White key C, E, G, B,	M110589B-1	4			C	C
110*	6917 4482	White key D, F, A, S	M110590B-1	1			C	C
120*	6917 4492	White key D, F, A	M110591B-1	3			C	C
130*	6917 4503	Black key 10P	M110594C-1	2			C	C
140*	6918 1962	Upper case sub ass'y	M210936C*1	1			C	N
LOWER CASE								
150*	6918 1950	Lower Case	M210933A*1	1			C	E
BATTERY COVER								
16	6912 9077	Battery cover sub ass'y	M31417G*28	1	10		C	A
OTHERS								
	6916 7880	Note stand	M310827-1	1			C	B

Notes: O* - New parts
Q'ty - Quantity used per unit
* - Minimum order and supply quantity

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R	
N	
K	
C	A
C	B
C	A
X	B
X	C
C	A
C	B
C	B
X	B
X	B
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C	B
C	A
C	F
C	A
C	A
C	C
C	C
C	C
C	N
C	E
C	A
C	B

EXPLODED VIEW

