

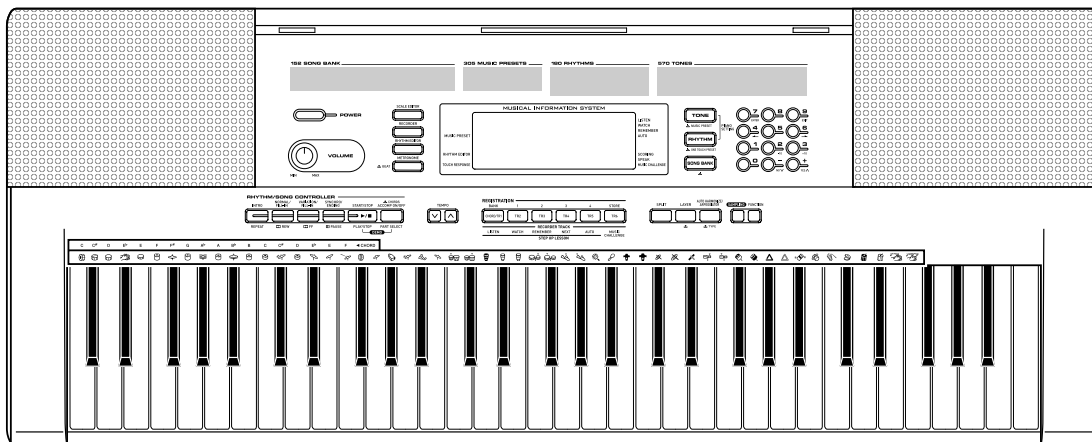
CASIO®

SERVICE MANUAL & PARTS LIST

(without price)

CTK-4000

JUL. 2008



CTK-4000

ELECTRONIC KEYBOARD

Ver.2 : Dec. 2008

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SPECIFICATIONS

Keyboard	61 standard-size keys
Touch Response	2 types, Off
Maximum Polyphony	48 notes (24 for certain tones)
Tones	
Built-in Tones	570
Sampling Tones	Up to 8 (Melody Sampling: 5, Drum Sampling: 3)* Up to 10 seconds
Functions	Layer, Split
Reverb	1 to 10, Off
Chorus	1 to 5, Off
Metronome	
Beats per Measure	0, 2 to 6
Tempo Range	30 to 255
Song Bank	
Built-in Songs	152
User Songs	Up to 10*
Step Up Lesson	
Lessons	4 (Listen, Watch, Remember, Auto)
Lesson Part	L, R, LR
Functions	Repeat, Voice Fingering Guide, Note Guide, Performance Evaluation
Music Challenge	20 notes
Auto Accompaniment	
Built-in Rhythms	180
User Rhythms	Up to 10 (Accompaniment Edit)*
Registration	32 (4 setups × 8 banks)
Recorder	Real-time recording, playback
Keyboard Play	5 songs, 6 tracks
Playing Along with a Built-in Songs	1 song (L, R, LR)
Memory Capacity	Approximately 12,000 notes (total for 6 songs)
Other Functions	
Transpose	±1 octaves (12 semitones)
Octave Shift	Upper/Lower ±2 octaves
Tuning	A4 = approx. 440 Hz ±100 cents
Scale Tuning	Preset Scales
Music Preset	305
One Touch Preset	180
Auto Harmonize	12 types
Arpeggiator	90 types
MIDI	16 multi-timbre received, GM Level 1 standard
Musical Information Function	Tone, Rhythm, Song Bank, numbers and names; staff notation, fingering, pedal operation, tempo, measure and beat number, chord name, etc.

Inputs/Outputs

USB port	TYPE B
Sustain/Assignable jack	Standard jack (sustain, sostenuto, soft, rhythm start/stop)
Phones/Output jack	Stereo standard jack Output Impedance: 200Ω, Output Voltage: 4.5V (RMS) MAX
Audio In jack	Stereo mini jack Input Impedance: 9kΩ, Input Sensitivity: 200mV

Power Jack

9V DC

Power Supply

2-way

Batteries	6 D-size zinc-carbon batteries or alkaline batteries
Battery Life	Approximately 5 hours continuous operation on zinc-carbon batteries
AC Adaptor	AD-5
Auto Power Off	Approximately 6 minutes after last key operation (Operates during battery use only)

Speakers

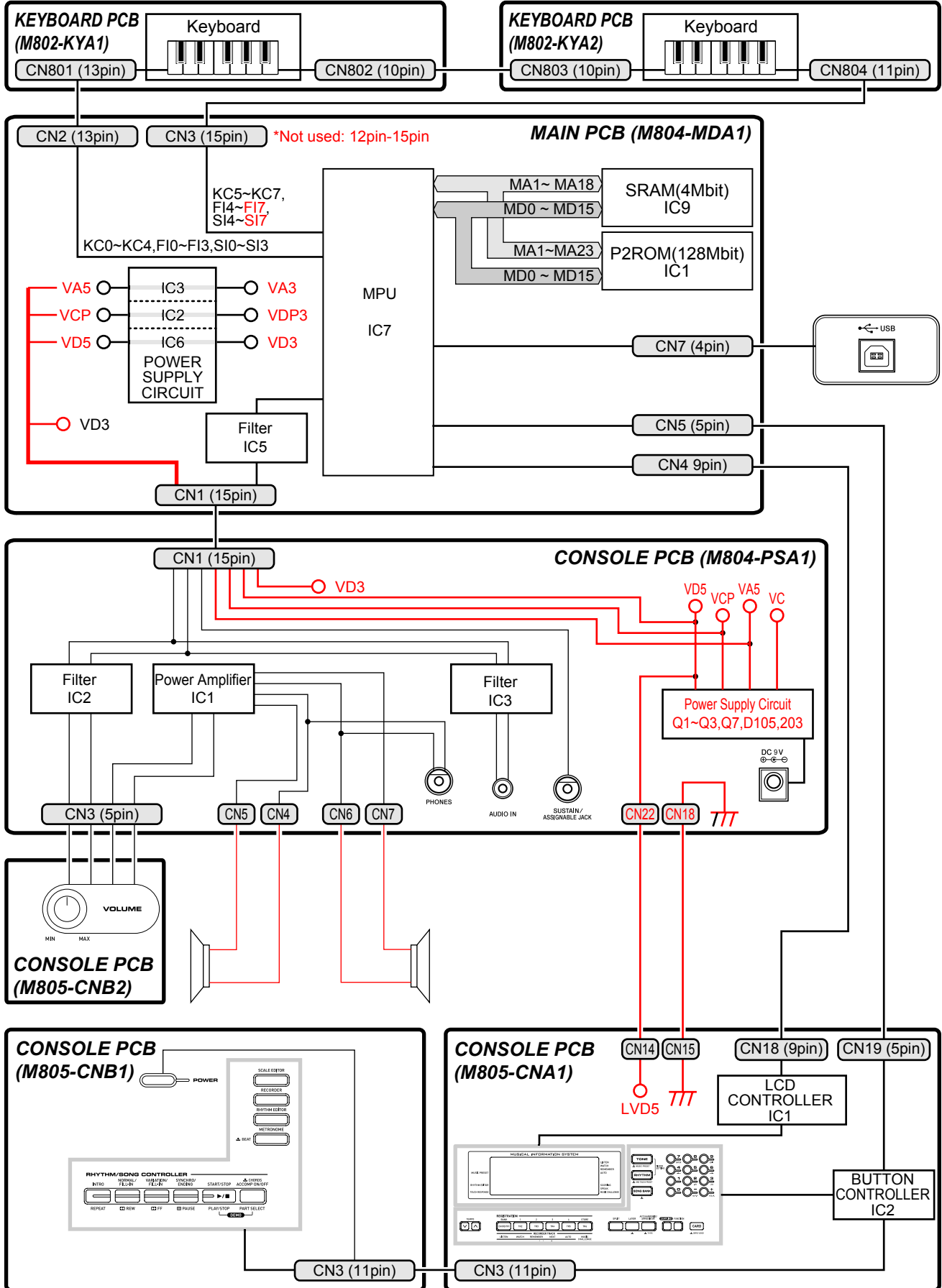
12cm × 2 (Output: 2.5W + 2.5W)

Power Consumption9V \approx 7.7W**Dimensions**95.0 × 37.6 × 13.0 cm ($37 \frac{7}{16} \times 14 \frac{13}{16} \times 5 \frac{1}{8}$ inch)**Weight**

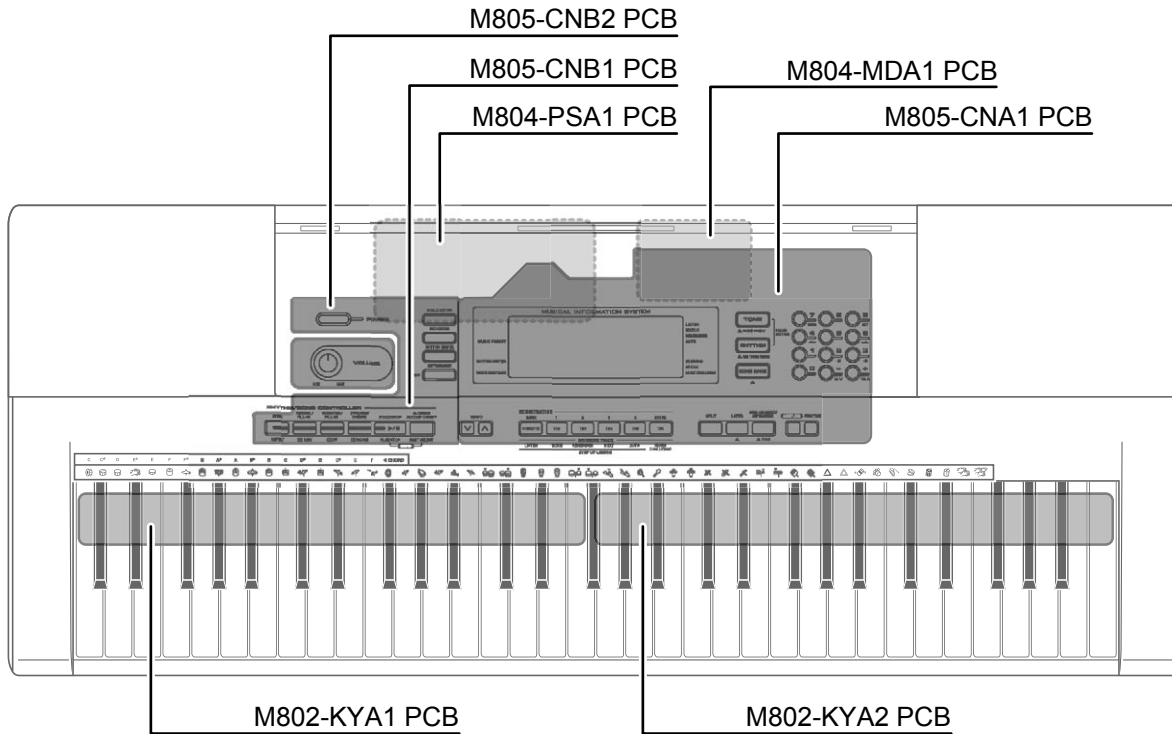
Approximately 4.6kg (10.1 lbs) (without batteries)

- Design and specifications are subject to change without notice.
- * This data is stored in a shared memory area with a total capacity of approximately 320Kbytes (1Kbyte = 1,024bytes).

BLOCK AND WIRING DIAGRAM



PCB LAYOUT



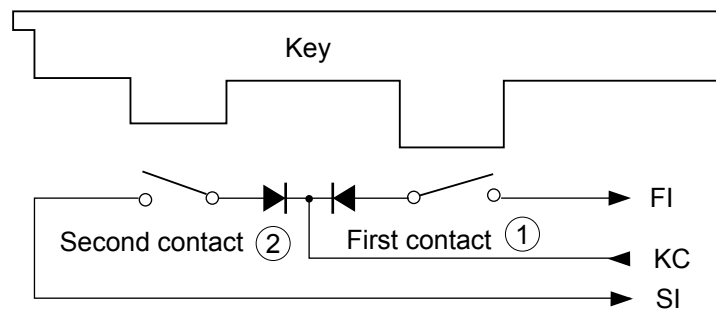
PCB		Components
MAIN PCB	M804-MDA1	MPU, Reset IC, SRAM(4Mbit), P2ROM(128Mbit), Key controller, SD card, USB, Power supply circuit
SUB PCB	M804-PSA1	Power supply circuit, Power amplifier, Phones terminal, Phone terminal, Pedal, DC IN jack
Console PCBs	M805-CNA1	LCD, LCD controller, Button, Button controller
	M805-CNA2	Speaker
	M805-CNA3	Speaker
	M805-CNB1	Power SW, Button
	M805-CNB2	Main volume
Keyboard PCBs	M802-KYA1	Keyboard
	M802-KYA2	

CIRCUIT DESCRIPTION

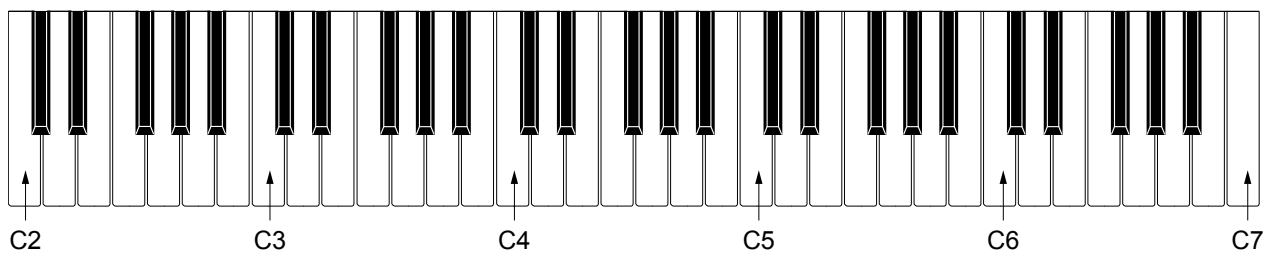
KEY MATRIX

	KC0	KC1	KC2	KC3	KC4	KC5	KC6	KC7
FI0	C2①	C2#①	D2①	D2#①	E2①	F2①	F2#①	G2①
SI0	C2②	C2#②	D2②	D2#②	E2②	F2②	F2#②	G2②
FI1	G2#①	A2①	A2#①	B2①	C3①	C3#①	D3①	D3#①
SI1	G2#②	A2②	A2#②	B2②	C3②	C3#②	D3②	D3#②
FI2	E3①	F3①	F3#①	G3①	G3#①	A3①	A3#①	B3①
SI2	E3②	F3②	F3#②	G3②	G3#②	A3②	A3#②	B3②
FI3	C4①	C4#①	D4①	D4#①	E4①	F4①	F4#①	G4①
SI3	C4②	C4#②	D4②	D4#②	E4②	F4②	F4#②	G4②
FI4	G4#①	A4①	A4#①	B4①	C5①	C5#①	D5①	D5#①
SI4	G4#②	A4②	A4#②	B4②	C5②	C5#②	D5②	D5#②
FI5	E5①	F5①	F5#①	G5①	G5#①	A5①	A5#①	B5①
SI5	E5②	F5②	F5#②	G5②	G5#②	A5②	A5#②	B5②
FI6	C6①	C6#①	D6①	D6#①	E6①	F6①	F6#①	G6①
SI6	C6②	C6#②	D6②	D6#②	E6②	F6②	F6#②	G6②
FI7	G6#①	A6①	A6#①	B6①	C7①			
SI7	G6#②	A6②	A6#②	B6②	C7②			

Note: Each key has two contacts, the first contact 1 and second contact 2.



NOMENCLATURE OF KEYS

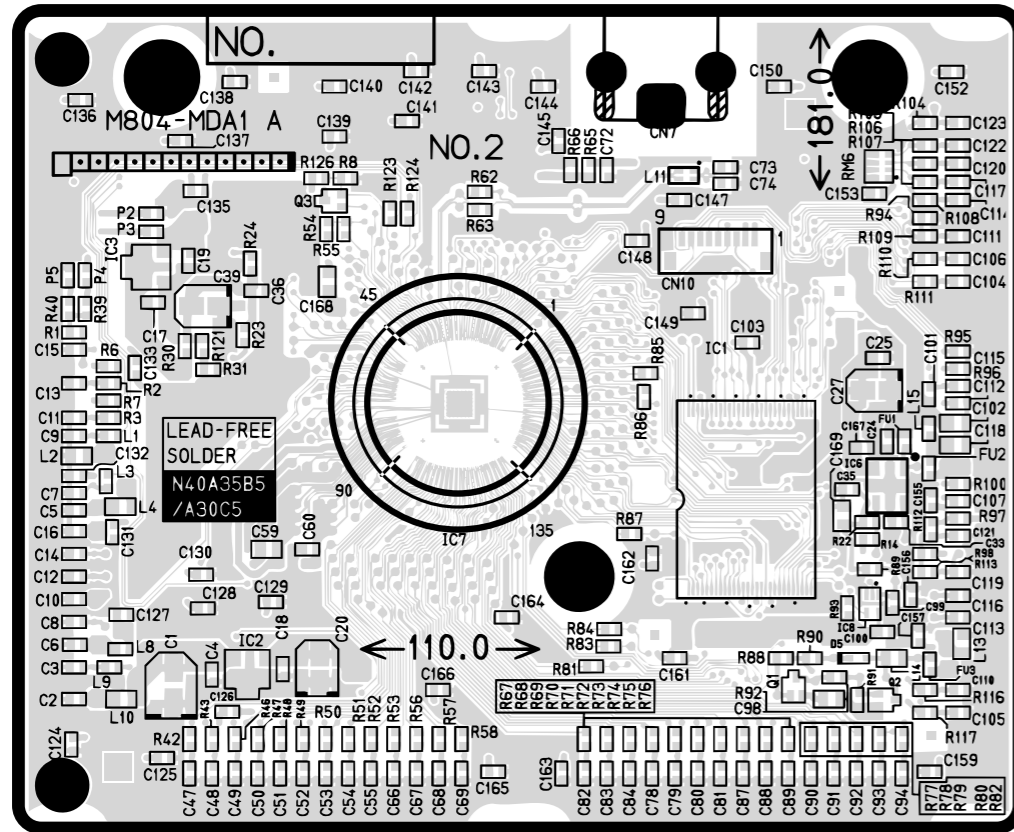


BUTTON MATRIX

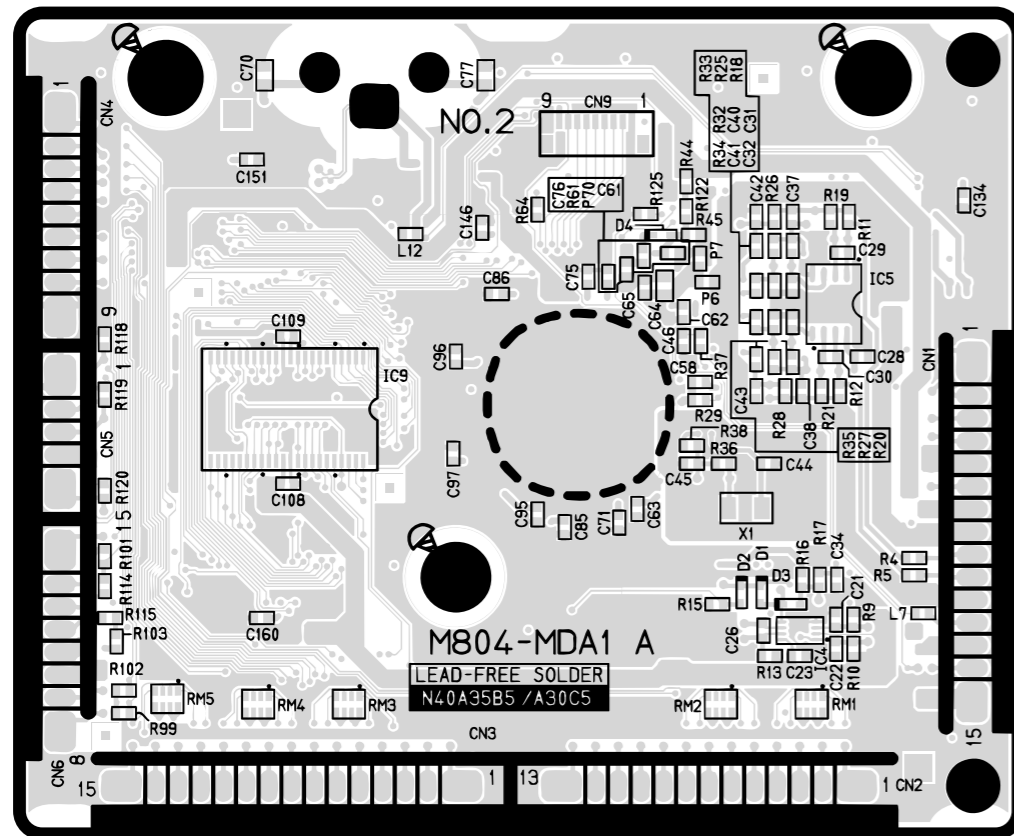
	SW00	SW01	SW02	SW03	SW04	SW05	SW06
SWI0	SAMPLING	RECORDER	RHYTHM	CARD	4	8	9
SWI1	SCALE EDITOR	FUNCTION	SONG BANK	TONE	7	5	6
SWI2	RHYTHM EDITOR	METRONOME	LISTEN	WATCH	1	2	+
SWI3	TEMPO DOWN	START/ STOP	REMEMBER	NEXT	0	-	3
SWI4	CHORDS/ ACCOMP ON_OFF	TEMPO UP	AUTO	MUSIC CHALLENGE	SPLIT	LAYER	AUTO HARMONIZE/ APPEGGIATOR
SWI5	VARIATION/ FILL-IN	SYNCHRO/ ENDING					
SWI6	NORMAL/ FILL-IN	INTRO					

PRINTED CIRCUIT BOARDS

Main PCB M804-MDA1

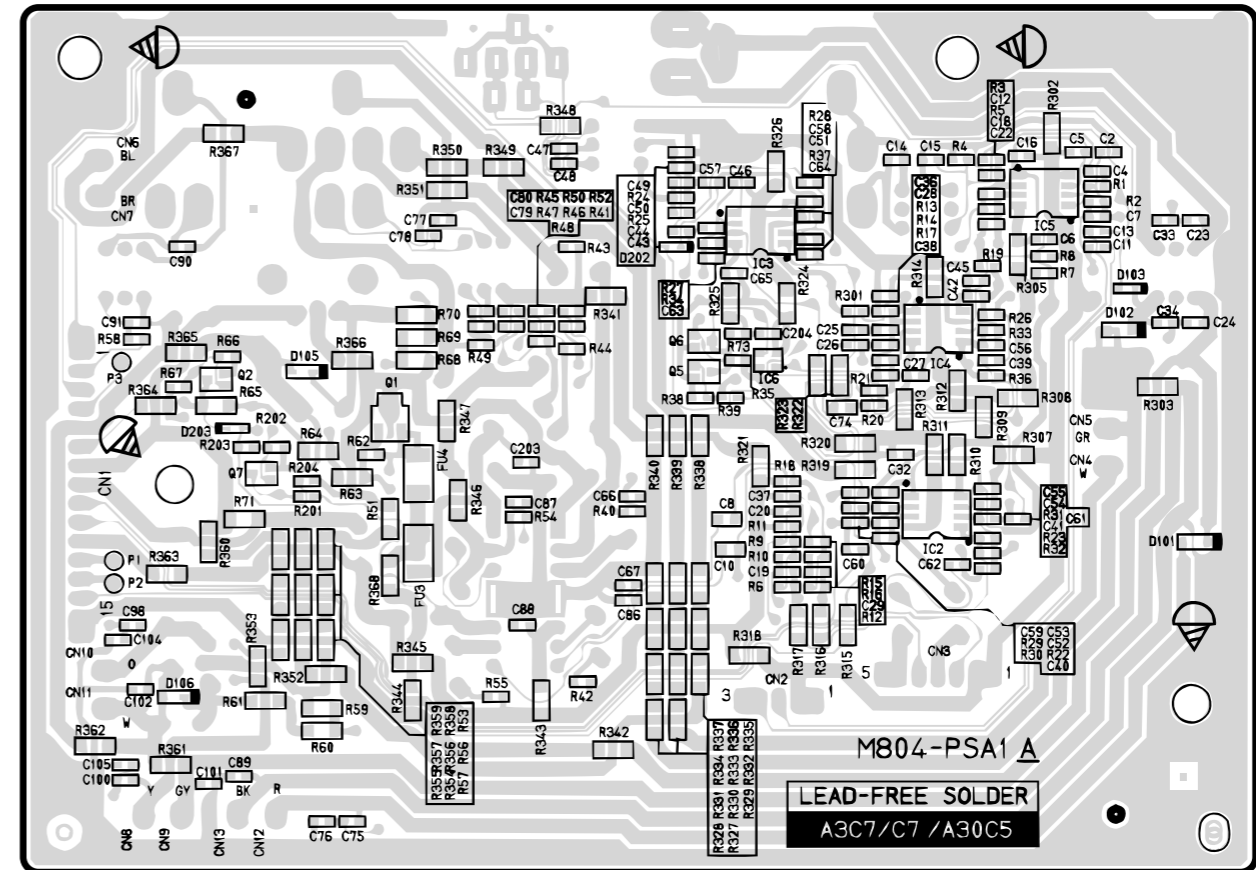


Top View

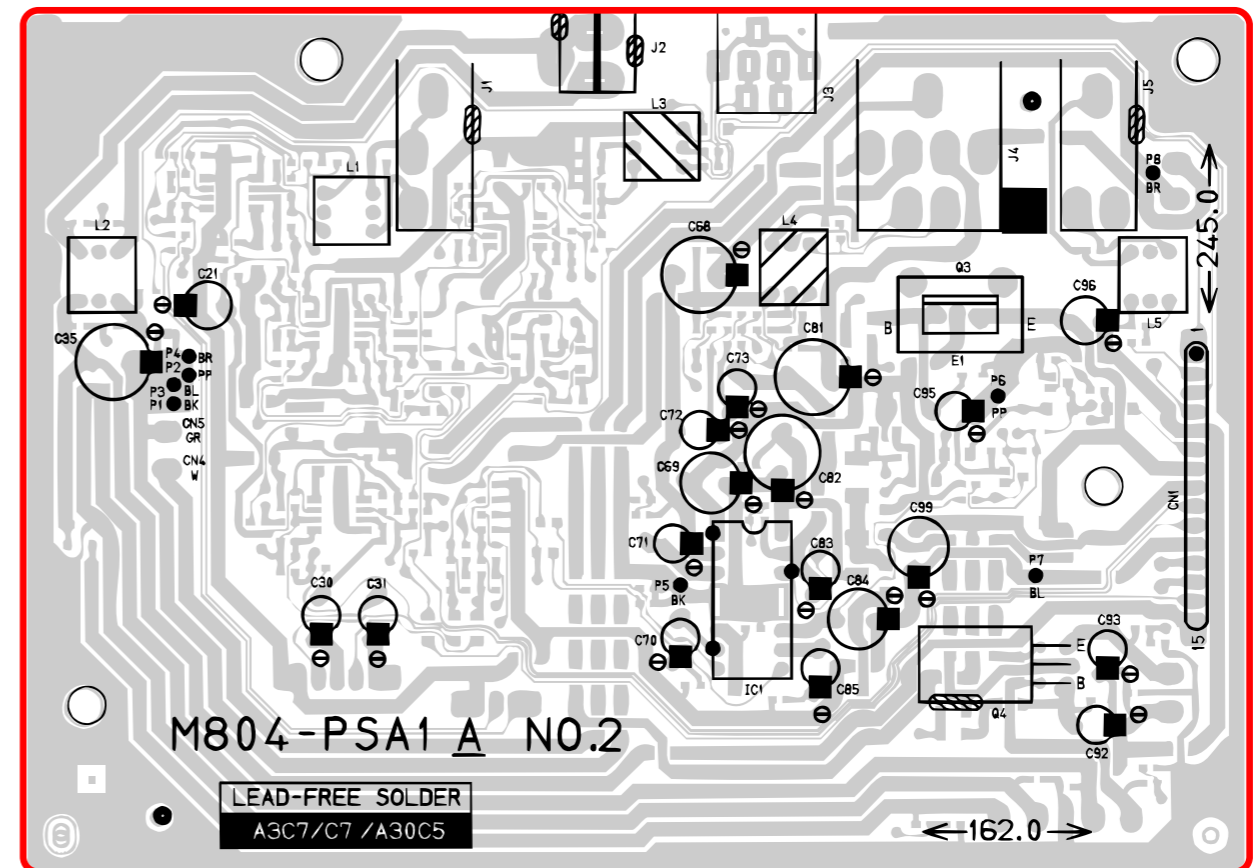


Bottom View

Sub PCB M804-PSA1

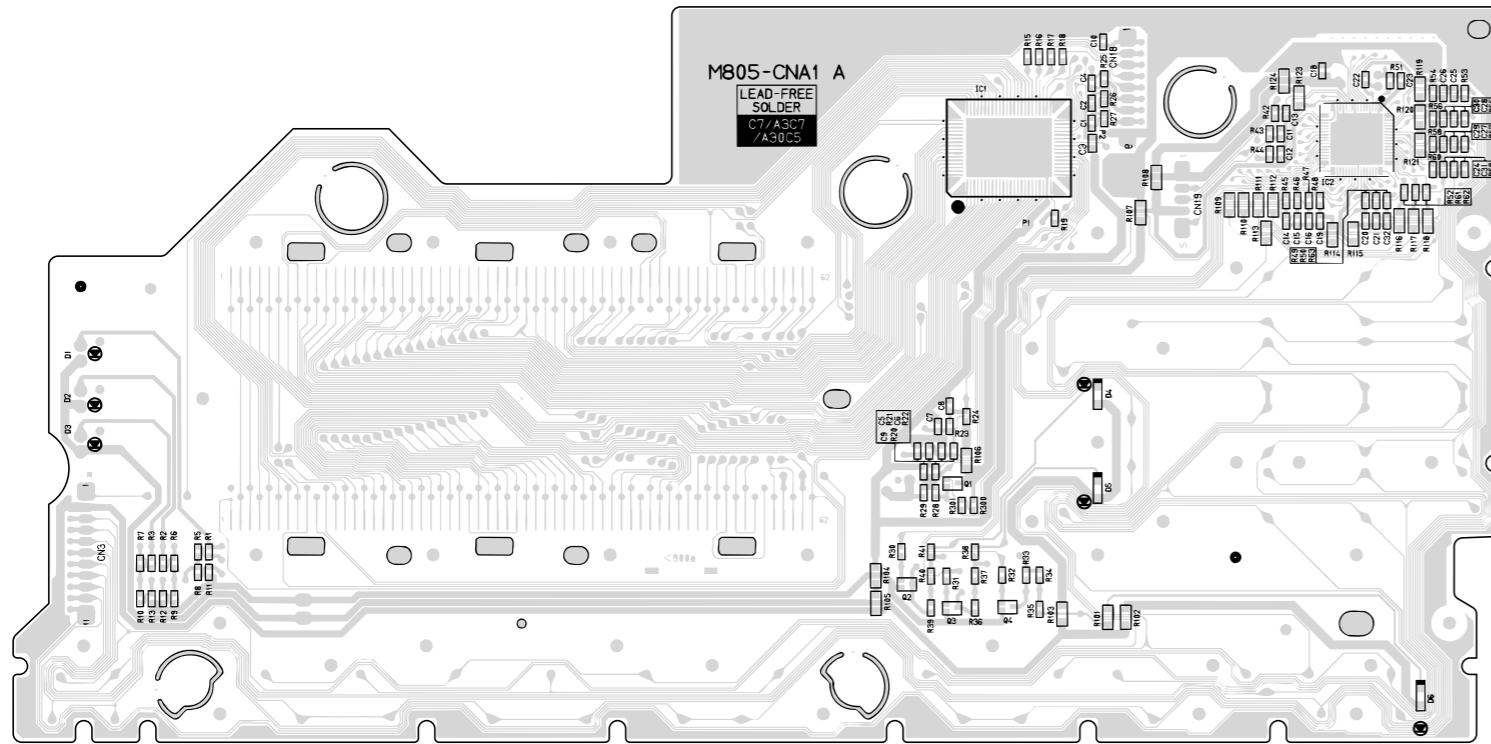


Top View

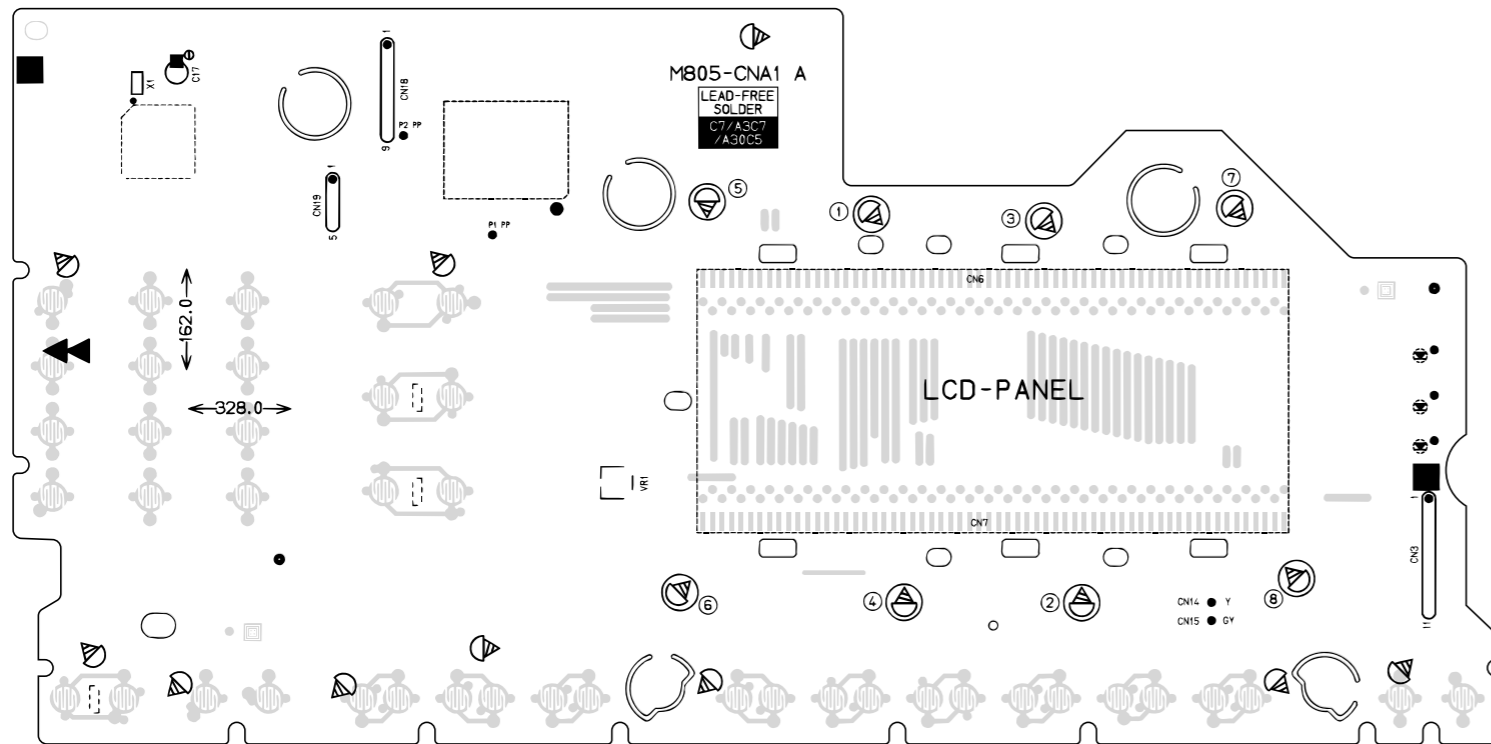


Bottom View

Console PCB M805-CNA1



Top View

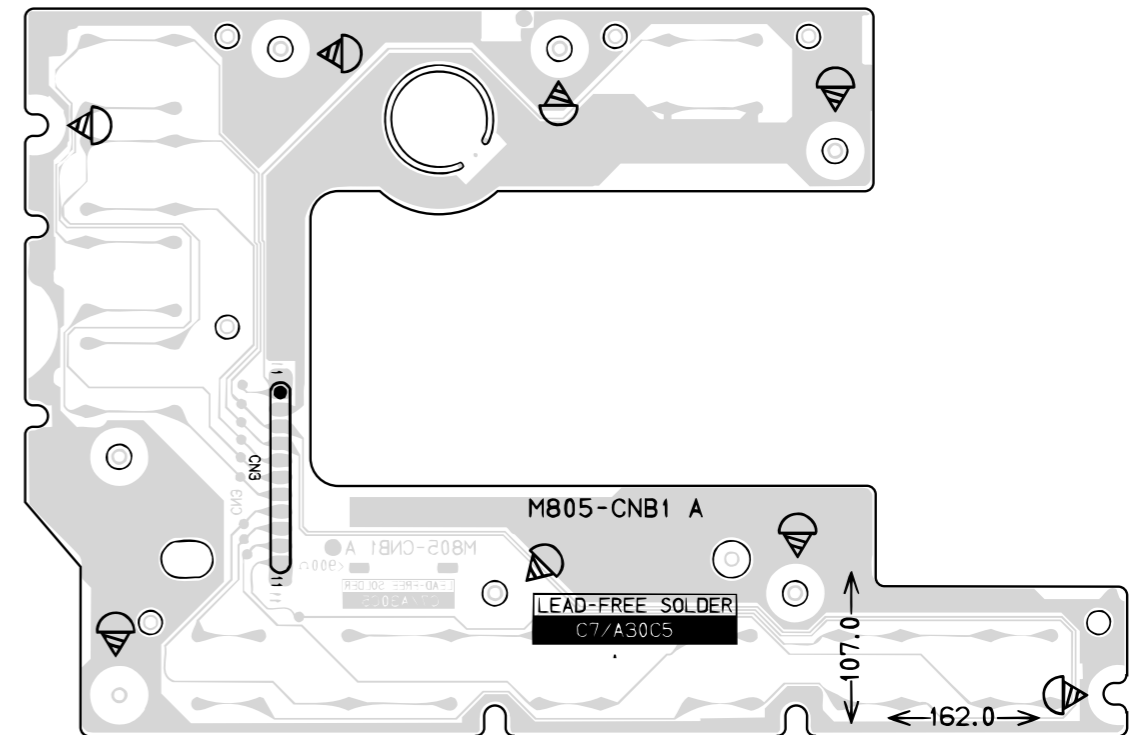


Bottom View

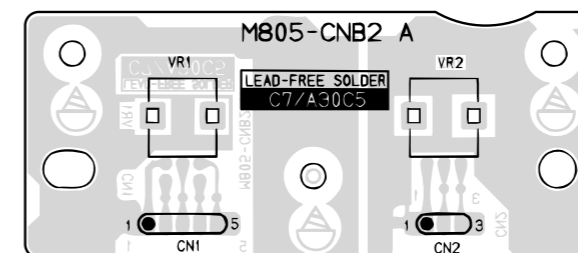
Console PCB M805-CNA2

Console PCB M805-CNA3

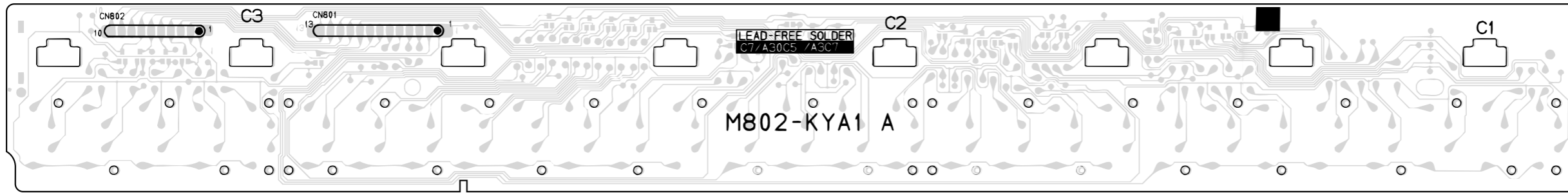
Console PCB M805-CNB1



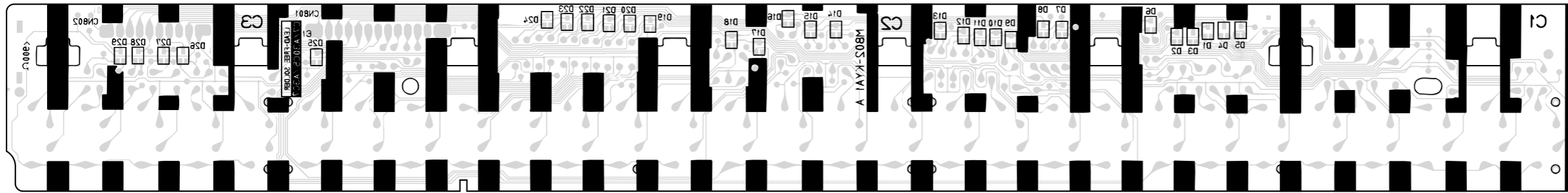
Console PCB M805-CNB2



Keyboard PCB M802-KYA1

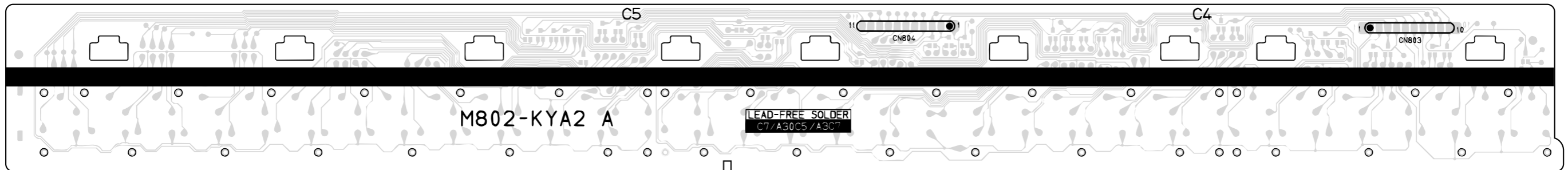


Top View

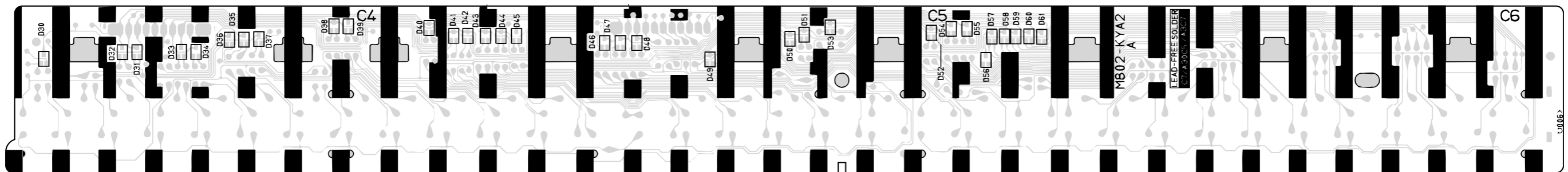


Bottom View

Keyboard PCB M802-KYA2



Top View



Bottom View

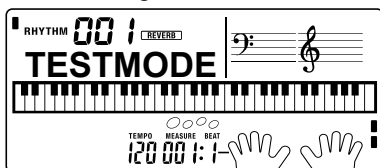
DIAGNOSTIC PROGRAM

■ Initial Setting

1. Connect the AC adaptor.
2. "Main" volume: MAX
3. Prepare a PC with USB cable connected for USB check.

■ How to start diagnostic program

1. Press and hold the "0", "1" and "2" buttons.
2. Press the "POWER" button.
3. The message "TESTMODE" is appears on LCD.

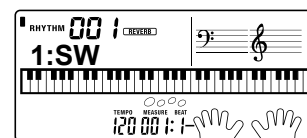


4. Release the "0", "1" and "2" buttons.

■ Diagnostic program

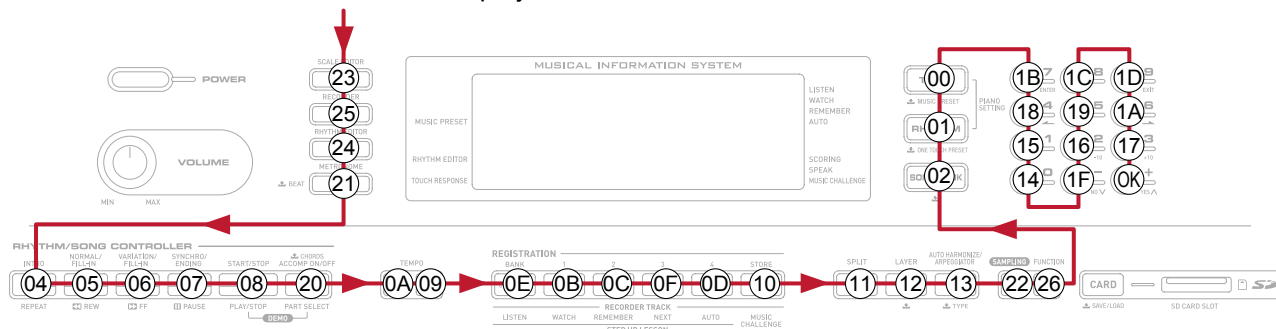
1. Button check

- ① Press "1" button.
- ② Press the button in the order indicated in the illustration below.
The button number will be displayed on the LCD.
Example) SW00 + (the button number shown in the illustration)



If the switch function is OK: You will hear the OK sound signal and the button number will be displayed.

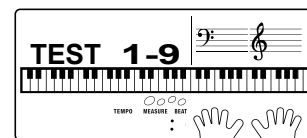
If the switch function is NG or switches were pressed in a wrong order: You will hear the NG sound signal and the button number will be displayed.



- ③ Press the "+" button the last.



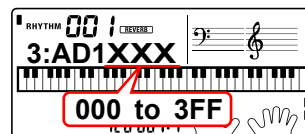
- ④ Press "0" to end the Button Check.



2. AC adaptor check

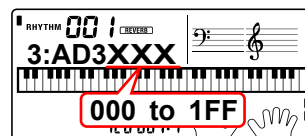
- ① Press "3" button.

Make sure that a value "XXX" shown in the illustration is in the range of 000 to 3FF.

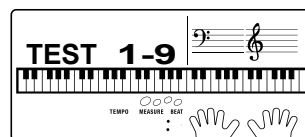


- ② Press "3" button.

Make sure that a value "XXX" shown in the illustration is in the range of 000 to 1FF.

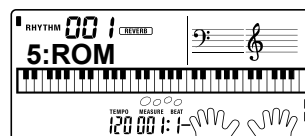


- ③ Press "0" to end the AC adaptor Check.



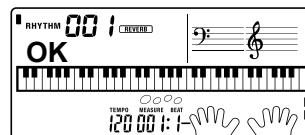
3. Memory check

- ① Press "5" button. (ROM check)

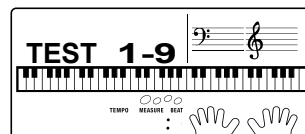


- ② Press "1" button.

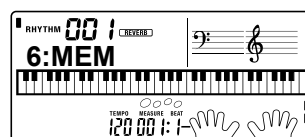
* Check for "OK" message and sound signal.



- ③ Press "0" to end the ROM Check.

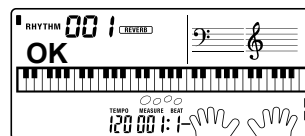


- ④ Press "6" button. (RAM check)

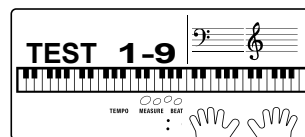


- ⑤ Press "1" button.

* Check for "OK" message and sound signal.

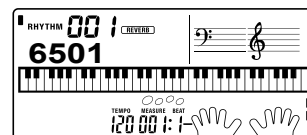


- ⑥ Press "0" to end the RAM Check.

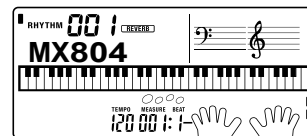


4. ROM Version and Model check

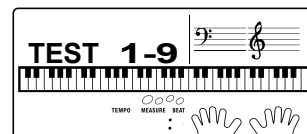
- ① Press "9" button. (ROM Version)
"6501" must be displayed.



- ② Press "9" button. (Model)
"MX804" must be displayed.

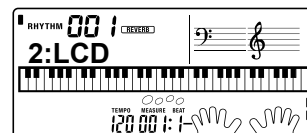


- ③ Press "0" to end the ROM Version and Model Check.

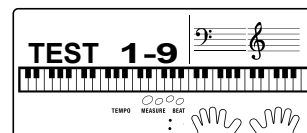


5. LCD check

- ① Press "2" button.



- ② Press "2" button.
 - * All dots and characters of LCD turn on.
 - * There is no lack of the dot and the character.
- ③ Press "2" button.
 - * LCD no display.
- ④ Press "0" to end the LCD Check.



6. USB check

* Operating System

Windows® XP (SP2 or later)*1

Windows Vista® *2

Mac OS® X (10.3.9, 10.4.11 or later, 10.5.2 or later)

*1: Windows XP Home Edition

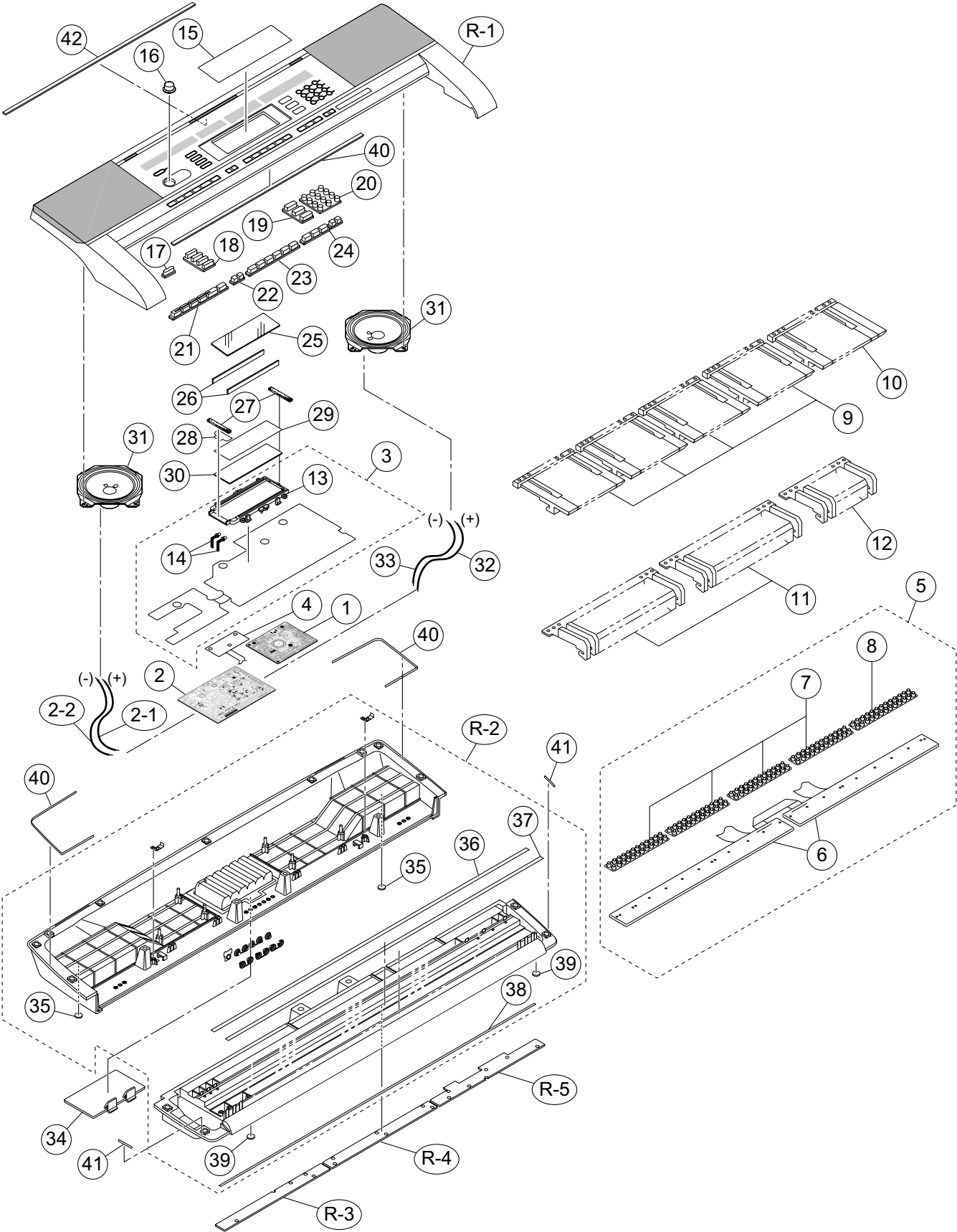
Windows XP Professional (32-bit)

*2: Windows Vista (32-bit)

- ① Connect CTK-4000 to the computer with a USB cable.
- ② Check that the message "USB AUDIO DEVICE" appears in "Device Manager" → "Sound, Video and Game Controller" on the computer monitor.
- ③ Disconnect the USB cable.
- ④ Check that the message "USB AUDIO DEVICE" disappears in "Device Manager" → "Sound, Video and Game Controller" on the computer monitor.

DIAGNOSTIC PROGRAM IS FINISHED.

EXPLODED VIEW



PARTS LIST

CTK-4000

Notes: This parts list does not include the cosmetic parts, which parts are marked with item No. "R-X" in the exploded view.

Contact our spare parts department if you need these parts for refurbish.

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 seperately.
3. The numbers in item column correspond to the same numbers in drawing.

- 1 CTK-4000_DI
- 2 CTK-4000_CHINA
- 3 CTK-4000_EU
- 4 CTK-4000_UK
- 5 CTK-4000_US

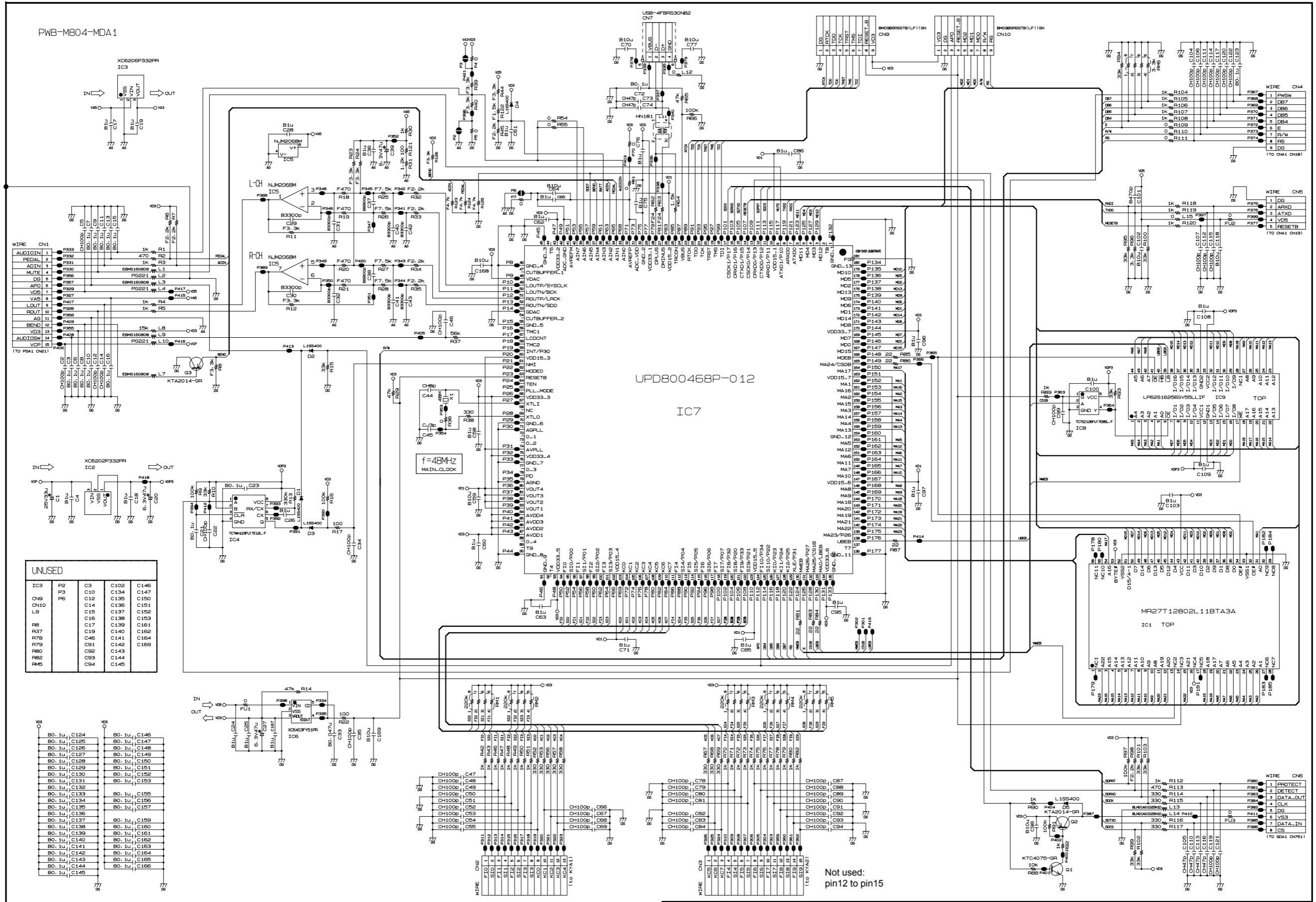
N	Item	Parts NO.	Parts Name	Specification	Q'TY					Price Code	R	Remarks
					1	2	3	4	5			
Main PCB												
N	1	10310574	PCB ASSY/MDA1	TK-RJM508908*001	1	1	1	1	1	DH	A	
	CN7	10236622	CONNECTOR	USB-4FBRS30NB2	1	1	1	1	1	AC	X	
	D1-D4	10276977	DIODE	L1SS400T1G	4	4	4	4	4	AA	X	
	IC5	10211950	IC	NJM2068M-D(TE1)	1	1	1	1	1	AC	C	
	IC8	10197554	IC	TC7SZ126FU(TE85L.F	1	1	1	1	1	AE	C	
	IC4	10197809	IC	TC7WH123FU(TE12L.F	1	1	1	1	1	AE	C	
	IC2	10098821	IC	XC6202P332PR	1	1	1	1	1	AD	C	
	IC6	10269340	IC	XC6403FY51PR	1	1	1	1	1	AE	C	
	IC9	10299049	LSI	LP62S16256GV55LLIF	1	1	1	1	1	BX	C	
N	IC1	10305133	LSI	MR27T12802L11ATA3A	1	1	1	1	1	BN	C	
	L11	10193074	COIL	DLW21HN181SQ2L	1	1	1	1	1	AC	X	
	L2,4,10	10089941	COIL	BLM21PG221SN1D	3	3	3	3	3	AA	X	
	L3	10238668	COIL	EBMS160808A102	1	1	1	1	1	AA	X	
Sub PCB												
N	2	10310575	PCB ASSY/PSA1	TK-RJM508909*001	1	1	1	1	1	CX	B	
N	2-1	10206832	WIRE	1007TASC24140W4040	1	1	1	1	1	AA	X	White(+)
N	2-2	10206831	WIRE	1007TASC24140G4040	1	1	1	1	1	AA	X	Green(-)
	FU4	10236708	FUSE	25H1000G	1	1	1	1	1	AC	C	
	FU3	10307615	FUSE	25H1250G	1	1	1	1	1	AC	C	
	IC1	10300598	IC	TA8227APL-D12-H-T	1	1	1	1	1	AG	C	
	J2	10088189	CONNECTOR	DS-240A2-383V4H	1	1	1	1	1	AC	C	DC jack
	J5	10206815	CONNECTOR	JY-6314*01-030	1	1	1	1	1	AA	C	Pedal jack
	J4	10305218	CONNECTOR	JY-6316B*01-070	1	1	1	1	1	AI	C	Phone jack
	J3	10305131	CONNECTOR	ST-3529B	1	1	1	1	1	AO	C	
	L3,4	10231919	COIL	RB53-856396NP	2	2	2	2	2	AA	X	
	L2,5	10231920	COIL	RB53-856397NP	2	2	2	2	2	AA	X	
	Q3	10206676	TRANSISTOR	KTC2026-Y-U/P	1	1	1	1	1	AB	X	
	D103,202,203	10276977	DIODE	L1SS400T1G	3	3	3	3	3	AA	X	
	D105	79114195	DIODE	UDZSTE-175.6B	1	1	1	1	1	AA	X	
	IC2,3,4	10211950	IC	NJM2068M-D(TE1)	3	3	3	3	3	AC	X	
	Q1	10216428	TRANSISTOR	KTA1666-Y-RTF/P	1	1	1	1	1	AB	X	
	Q2,7	10207675	TRANSISTOR	KTC4075-GR-RTK/P	2	2	2	2	2	AA	X	
Console PCBs												
N	3	10310578	BL ASSY	TK-RJM508713*001	1	1	1	1	1	DH	C	
	IC2	10159709	LSI	UPD65881GK-1019ETA	1	1	1	1	1	AT	C	
	VR1	69304870	VARIABLE R	EVND8AA03B53	1	1	1	1	1	AA	C	
	X1	10093909	CERAMIC OSCILLATOR	CSBLA1M00J58-B0	1	1	1	1	1	AC	X	
	D4,5	10209564	LED	KPTD-3216SURCK	2	2	2	2	2	AA	X	
	IC1	10222381	LSI	ST7066U-0A-QG	1	1	1	1	1	AU	X	
	Q2,3	10202670	TRANSISTOR	KTA2014-GR-RTK/P	2	2	2	2	2	AA	X	
	Q1	10207675	TRANSISTOR	KTC4075-GR-RTK/P	1	1	1	1	1	AA	X	
N	4	10310579	PCB ASSY/CNB2	TK-RJM508910*001	1	1	1	1	1	CG	C	
	VR1	10273794	VARIABLE RESISTOR	F-09KGH1-CASIO-2	1	1	1	1	1	AO	X	
Keyboard PCBs												
	5	10304697	PCB ASSY/KEY/RUBER	TK-RJM508598*001	1	1	1	1	1	CJ	C	
	6	10304698	PCB ASSY/KYA	TK-RJM508618*001	1	1	1	1	1	CE	C	
	D1-D61	10294400	DIODE	LM1MA142WKT1G	61	61	61	61	61	AA	X	

- 1 CTK-4000_DI
- 2 CTK-4000_CHINA
- 3 CTK-4000_EU
- 4 CTK-4000_UK
- 5 CTK-4000_US

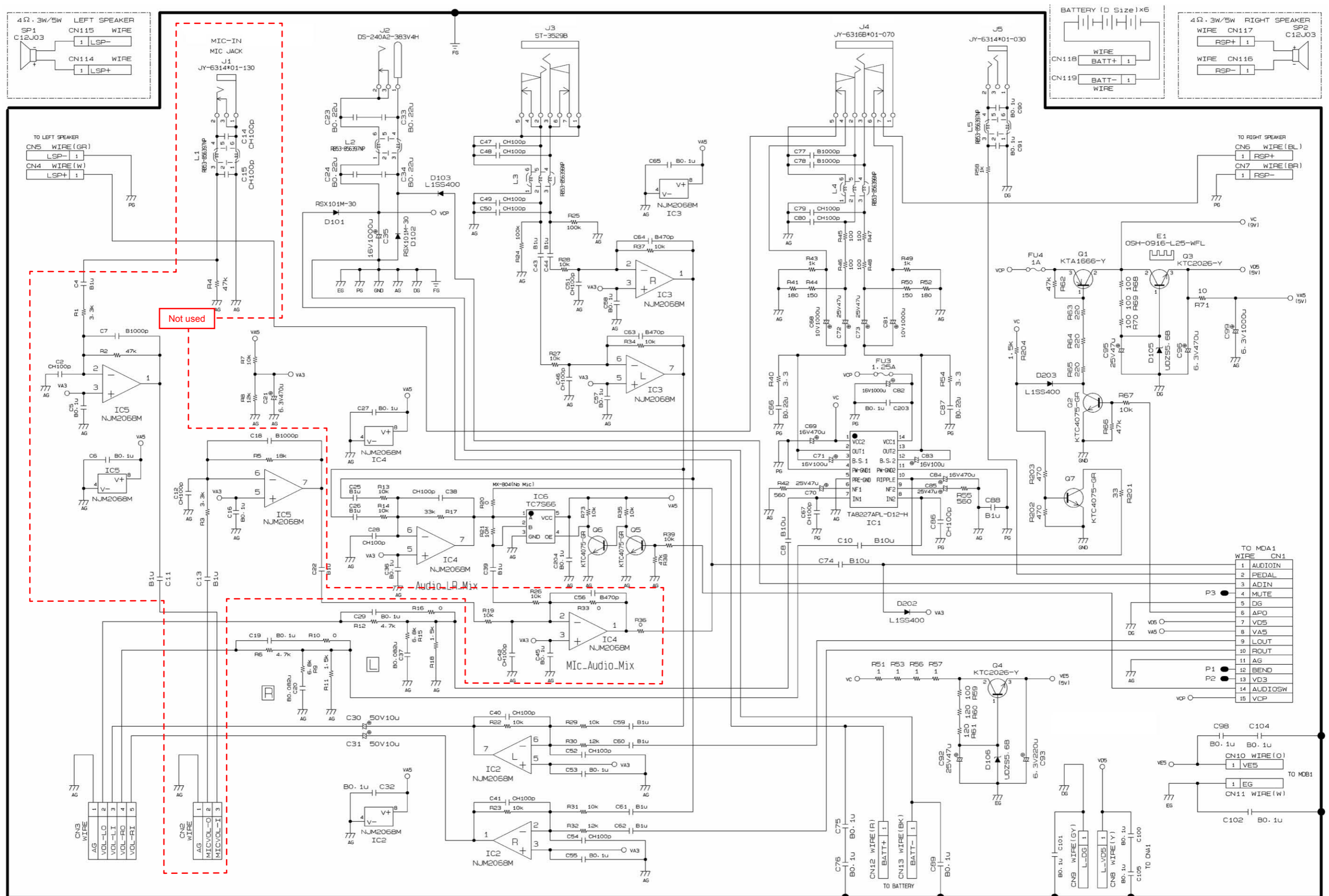
N	Item	Parts NO.	Parts Name	Specification	Q'TY					Price Code	R	Remarks
					1	2	3	4	5			
Keyboard Unit												
	7	10269451	RUBBER/CONTACT/CB	RJM507656-001V01	4	4	4	4	4	AG	B	
	8	10270393	RUBBER/CONTACT/CS	RJM507657-001V01	1	1	1	1	1	AG	B	
	9	10249864	WHITE KEY/CB	TK-RJM507243*001	4	4	4	4	4	BB	C	
	10	10249865	WHITE KEY/CS	TK-RJM507244*001	1	1	1	1	1	BD	C	
	11	10274032	BLACK KEY/10P	RJM506595-001V02	2	2	2	2	2	AL	C	
	12	10247548	BLACK KEY/5P	RJM506595-002V01	1	1	1	1	1	AE	C	
Case Unit												
	13	10131110	REFLECTOR	RJM502577-001V01	1	1	1	1	1	AC	C	
N	14	10308432	LED	SLR343BD2T3F	2	2	2	2	2	AS	C	
N	15	10305395	PLATE/DISPLAY	RJM508689-001V01	1	1	1	1	1	AH	C	
N	16	10187478	KNOB/ROTARY	RJM502503-005V02	1	1	1	1	1	AG	C	
N	17	10305382	RUBBER KEY/A	RJM508680-001V01	1	1	1	1	1	AH	C	
N	18	10305384	RUBBER KEY/B	RJM508681-001V01	1	1	1	1	1	AJ	C	
N	19	10305385	RUBBER KEY/C	RJM508682-001V01	1	1	1	1	1	AK	C	
N	20	10305387	RUBBER KEY/D	RJM508683-001V01	1	1	1	1	1	AK	C	
N	21	10305389	RUBBER KEY/E	RJM508684-001V01	1	1	1	1	1	AK	C	
N	22	10305390	RUBBER KEY/F	RJM508685-001V01	1	1	1	1	1	AH	C	
N	23	10305391	RUBBER KEY/G	RJM508686-001V01	1	1	1	1	1	AK	C	
N	24	10305393	RUBBER KEY/H	RJM508687-001V01	1	1	1	1	1	AH	C	
N	25	10308433	LCD	TY11239N-C0025/08	1	1	1	1	1	BL	C	
	26	10203058	CONNECTOR	RJM505822-001V01	2	2	2	2	2	AD	C	
	27	10037738	SPONGE	M441167-1	2	2	2	2	2	AA	C	
	28	10131094	TOP PIECE	RJM502565-001V01	1	1	1	1	1	AA	C	
	29	10250780	FILM	RJM507061-001V01	1	1	1	1	1	AA	C	
	30	10248119	PLATE/BL	RJM506818-001V01	1	1	1	1	1	AL	C	
	31	10272063	SPEAKER	C12J03	2	2	2	2	2	AP	C	
N	32	10309816	WIRE	1007TASC24360B3030	1	1	1	1	1	AA	X	SP RIGHT+
N	33	10309817	WIRE	1007TASC24370T3030	1	1	1	1	1	AA	X	SP RIGHT-
N	34	10310573	COVER ASSY/BATTERY	TK-M341288*005	1	1	1	1	1	BL	C	
	35	69226920	FOOT/RUBBER	M41361-6	2	2	2	2	2	AA	X	
N	36	10301471	CUSHION	RJM508593-001V01	1	1	1	1	1	AJ	C	
N	37	10304864	DAMPER/KB	RJM507745-002V01	1	1	1	1	1	AC	C	
N	38	10205015	CUSHION	M440342-001V02	1	1	1	1	1	AC	C	
	39	69226920	FOOT/RUBBER	M41361-6	2	2	2	2	2	AA	C	
N	40	10263728	PACKING	M441117-001V02	3	3	3	3	3	AB	X	
	41	10214396	PACKING	RJM506032-001V01	2	2	2	2	2	AA	X	
N	42	10136565	PACKING	M441190-002V01	1	1	1	1	1	AH	X	
ACCESSORIES												
	-	10107083	STAND/MUSIC	M141071-5	1	1	1	1	1	AW	C	
REFURBISH												
N	R-1	10310576	CASE ASSY/UPPER	TK-RJM508712*001	1	1	1	1	1	DE	C	
N	R-2	10313608	CASE UNIT/MAIN	TK-RJM508715*001	1	1	1	1	1	DE	C	
	R-3	10302799	L COVER/A	RJM508655-001V01	1	1	1	1	1	AD	C	
	R-4	10302800	L COVER/B	RJM508656-001V01	1	1	1	1	1	AD	C	
	R-5	10302801	L COVER/C	RJM508657-001V01	1	1	1	1	1	AD	C	

SCHEMATIC DIAGRAMS

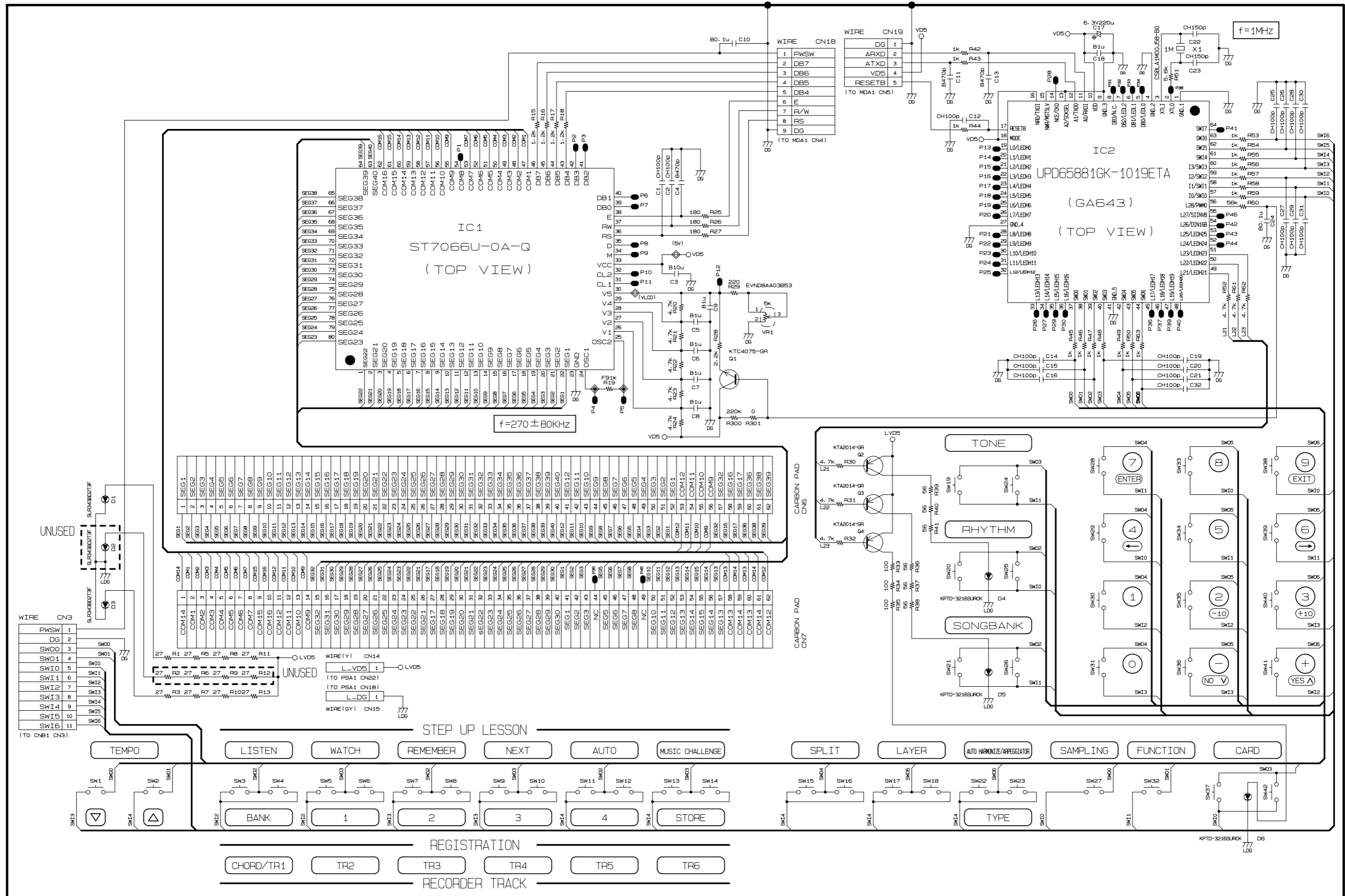
Main PCB M804-MDA1



Sub PCB M804-PSA1



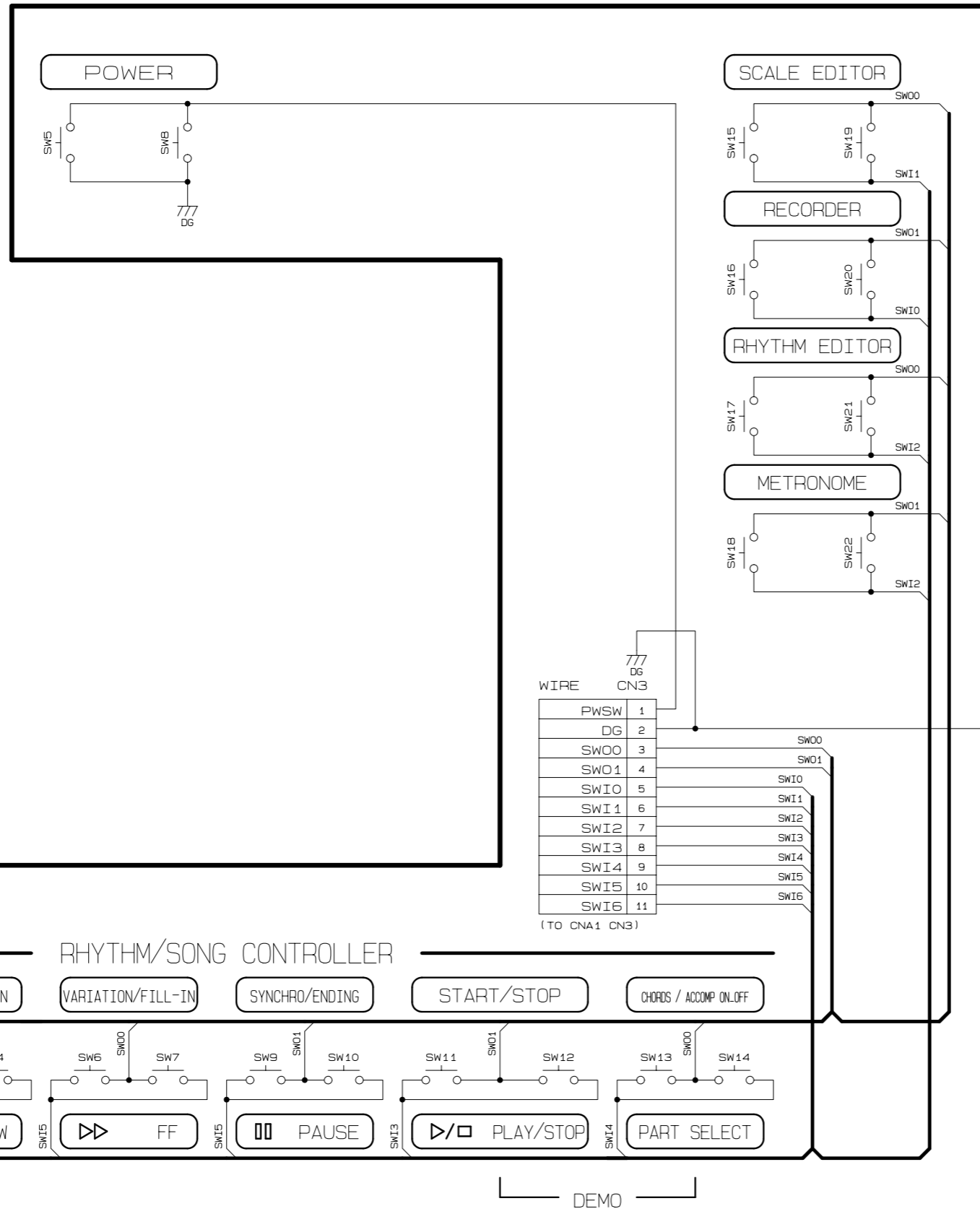
Console PCB M805-CNA1



Console-PGB-M805-GNA2

Console-PGB-M805-GNA3

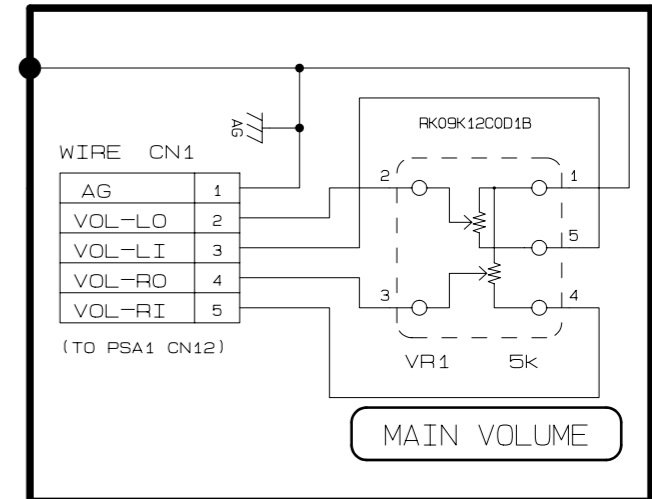
Console PCB M805-CNB1



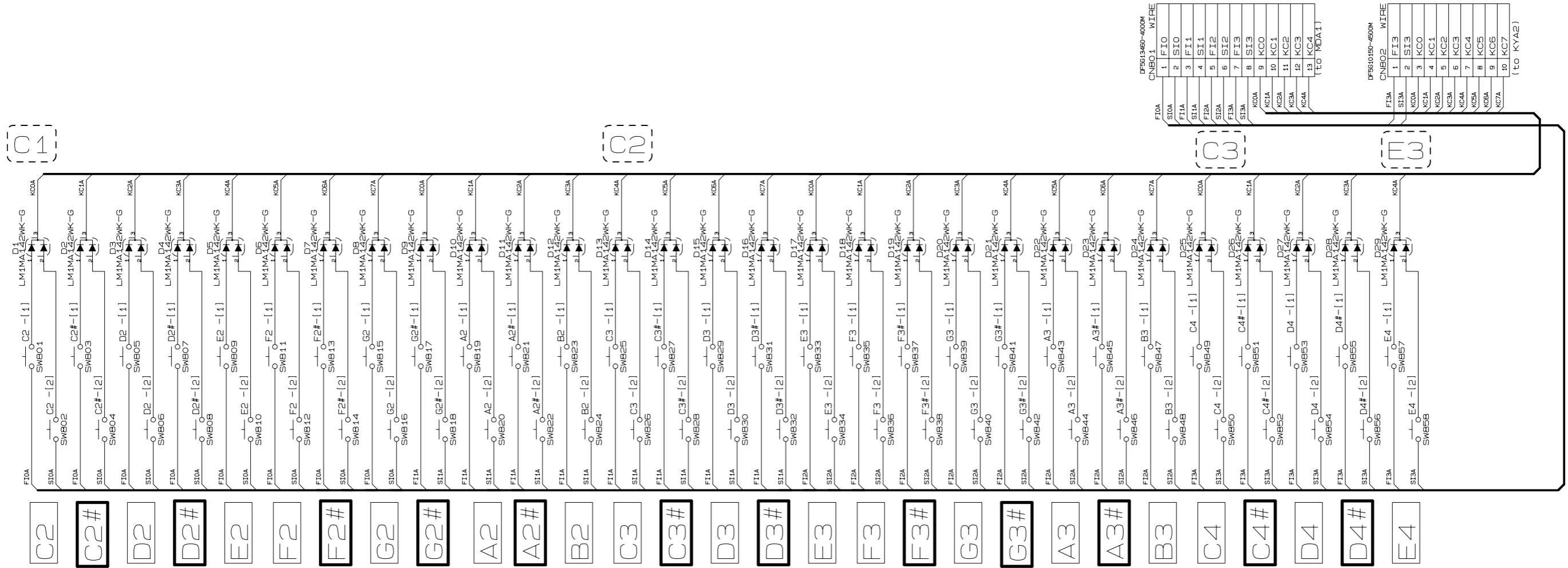
PWB-M805-CNB1

Console PCB M805-CNB2

PWB-M805-CNB2

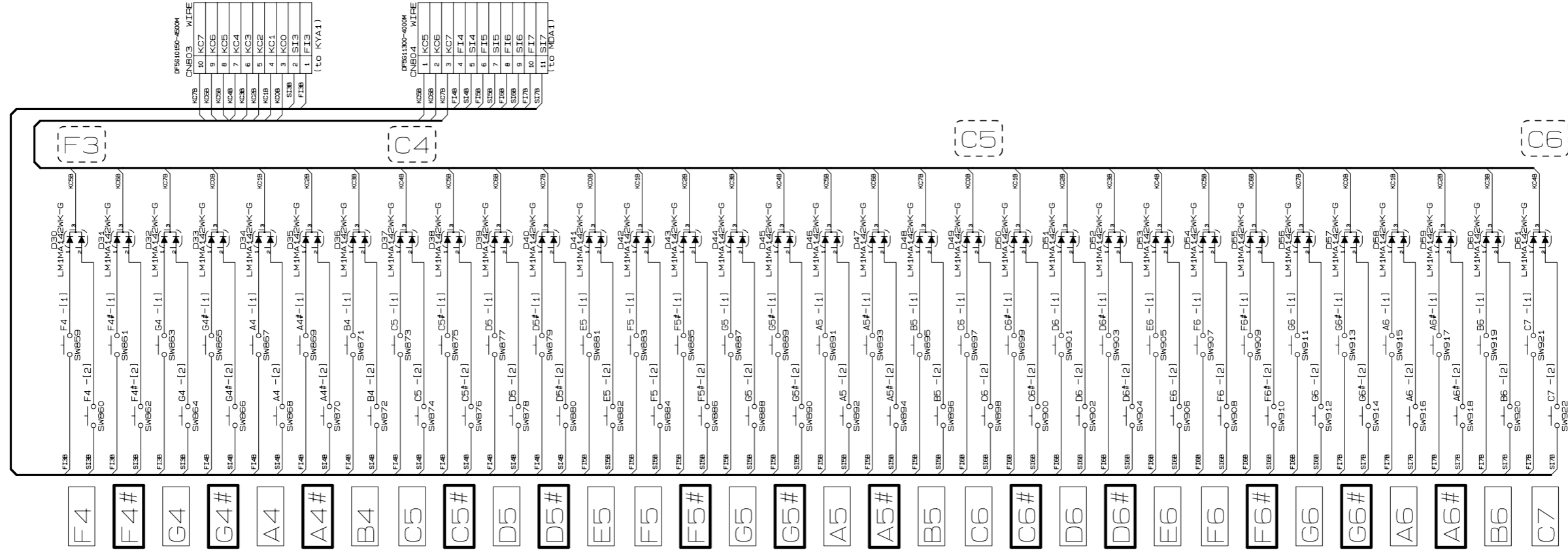


Console PCB M802-KYA1



M802-KYA1

Keyboard PCB M802-KYA2



M802-KYA2

Ver.1 : Oct. 2008

- Addition of The CONTENTS
- Addition of The DIAGNOSTIC PROGRAM (P8 to P10)

Ver.2 : Dec. 2008

- Addition of The CONTENTS
- Correction of The BLOCK AND WIRING DIAGRAM (P3)
- Correction of The PCB LAYOUT (P4)
- Addition of The CIRCUIT DESCRIPTION (P5 to P6)
- Correction of The PRINTED CIRCUIT BOARDS (P7 and P8)
- Correction of The SCHEMATIC DIAGRAMS (P18 and P20)

CASIO COMPUTER CO.,LTD.

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