

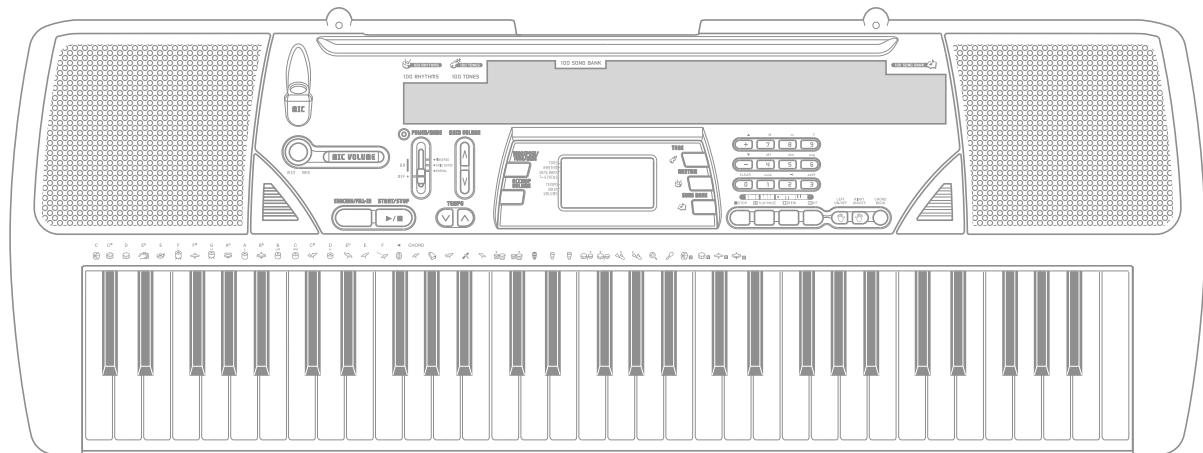
CASIO®

Service Manual

(without price)

CTK-496

JUN. 2004



CTK-496

ELECTRONIC KEYBOARD

Ver.1 : Feb. 2005

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SPECIFICATIONS

GENERAL

Keyboard:	61 standard-size keys, 5 octaves
Tones:	100
Polyphony:	12 notes maximum (6 for certain tones)
Auto Accompaniment	
Rhythm Patterns:	100
Tempo:	Variable (236 steps, ♩ = 20 to 255)
Chords:	2 fingering methods (CASIO CHORD, FINGERED)
Rhythm Controller:	START/STOP, SYNCHRO/FILL-IN
Accomp Volume:	0 to 9 (10 steps)
Song Bank	
Tunes:	100
Controllers:	PLAY/PAUSE, STOP, REW, FF, LEFT ON/OFF (ACCOMP), RIGHT ON/OFF (MELODY)
Display	
Name display:	TONE, RHYTHM, SONG BANK name/number, keyboard settings name/value
Tempo:	Tempo value, metronome, synchro standby, beat indicator, volume setting
Chord:	Chord name, Chord form
Fingering:	Fingering indicators, parts
Song Bank Status:	PLAY, PAUSE, REW, FF
Staff:	5 octaves with sharp and flat indications, pedal symbol, octave symbol
Keyboard:	5 octaves
MIDI:	5 multi-timbre receive
Other Functions	
Transpose:	12 steps (-6 semitones to +5 semitones)
Tuning:	Variable (A4 = approximately 440Hz ±50 cents)
Volume:	0 to 9 (10 steps)
Terminals	
MIDI Terminals:	IN, OUT
Sustain Terminal:	Standard jack
Phones/Output Terminal:	Stereo standard jack (Output is monaural.)
	Output Impedance: 78Ω
	Output Voltage: 4V (RMS) MAX
Power Supply Terminal:	9V DC
Microphone In:	Standard jack (with microphone volume knob)
	Input impedance: 40kΩ
	Input sensitivity: 10mV
Power Supply:	Dual power supply system
Batteries:	6 AA-size batteries
Battery Life:	Approximately 4 hours continuous operation on alkaline batteries
	Approximately 2 hours continuous operation on manganese batteries
AC Adaptor:	AD-5
Auto Power Off:	Turns power off approximately 6 minutes after last key operation. Enabled under battery power only, can be disabled manually.
Speaker Output:	2.0W + 2.0W
Power Consumption:	9V ≡ 7.7W
Dimensions:	95.6 × 35.4 × 13.2 cm (37 11/16 × 13 15/16 × 3 3/16 inch)
Weight:	Approximately 3.8kg (8.4lbs) (without batteries)

ELECTRICAL

Current drain with 9 V DC:

No sound output 86 mA \pm 20 %

Maximum volume 650 mA \pm 20 %

with 13 keys C1 to C2 pressed in 60 Synth-Lead 1

Volume: Maximum, Velocity: Maximum

Speaker output level (Vrms with 4 Ω load each channel):

with key C1 pressed in 60 Synth-Lead 1 1080 mV \pm 20 %

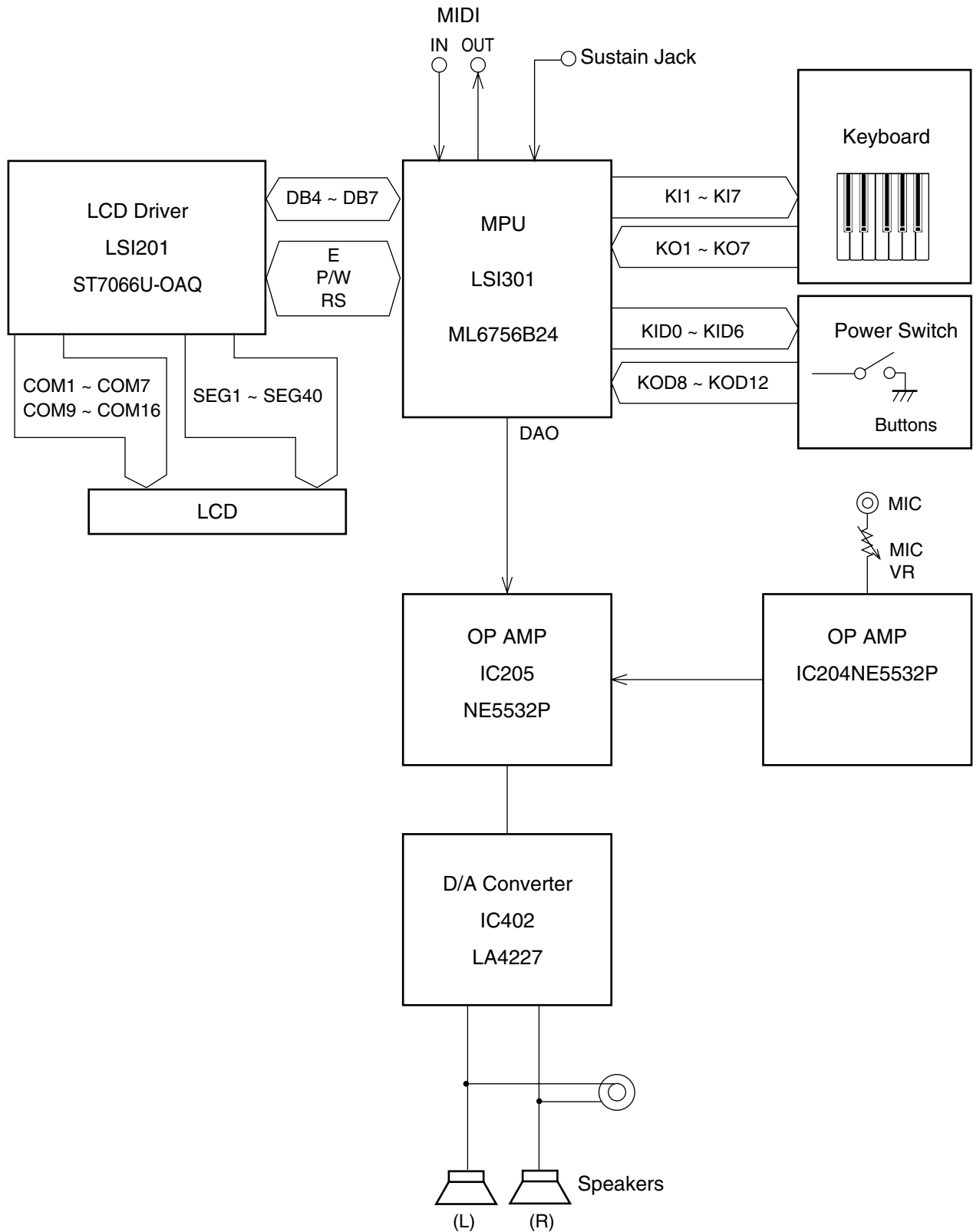
Phone output level (Vrms with 32 Ω load each channel):

with key F5 pressed in 60 Synth-Lead 1 295 mV \pm 20 %

Output level (Vrms with 47 K Ω load each channel):

with key F2 pressed in 60 Synth-Lead 1 1250 mV \pm 20 %

BLOCK DIAGRAM

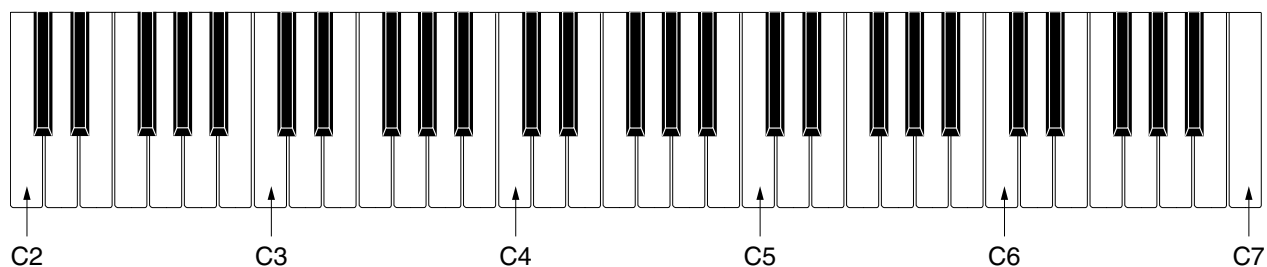


CIRCUIT DESCRIPTION

KEY MATRIX

	KI0	KI1	KI2	KI3	KI4	PI4	PI5	PI6	PI7
KO0	C2	G2#	E3	C4	G4#	–	–	–	–
KO1	C2#	A2	F3	C4#	A4	–	–	–	–
KO2	D2	A2#	F3#	D4	A4#	–	–	–	–
KO3	D2#	B2	G3	D4#	B4	–	–	–	–
KO4	E2	C3	G3#	E4	–	–	–	–	–
KO5	F2	C3#	A3	F4	–	–	–	–	–
KO6	F2#	D3	A3#	F4#	–	–	–	–	–
KO7	G2	D3#	B3	G4	–	–	–	–	–
PO0	–	–	–	–	–	–	E5	C6	G6#
PO1	–	–	–	–	–	–	F5	C6#	A6
PO2	–	–	–	–	–	–	F5#	D6	A6#
PO3	–	–	–	–	–	–	G5	D6#	B6
PO4	–	–	–	–	–	C5	G5#	E6	C7
PO5	–	–	–	–	–	C5#	A5	F6	–
PO6	–	–	–	–	–	D5	A5#	F6#	–
PO7	–	–	–	–	–	D5#	B5	G6	–

NOMENCLATURE OF KEYS



BUTTON MATRIX

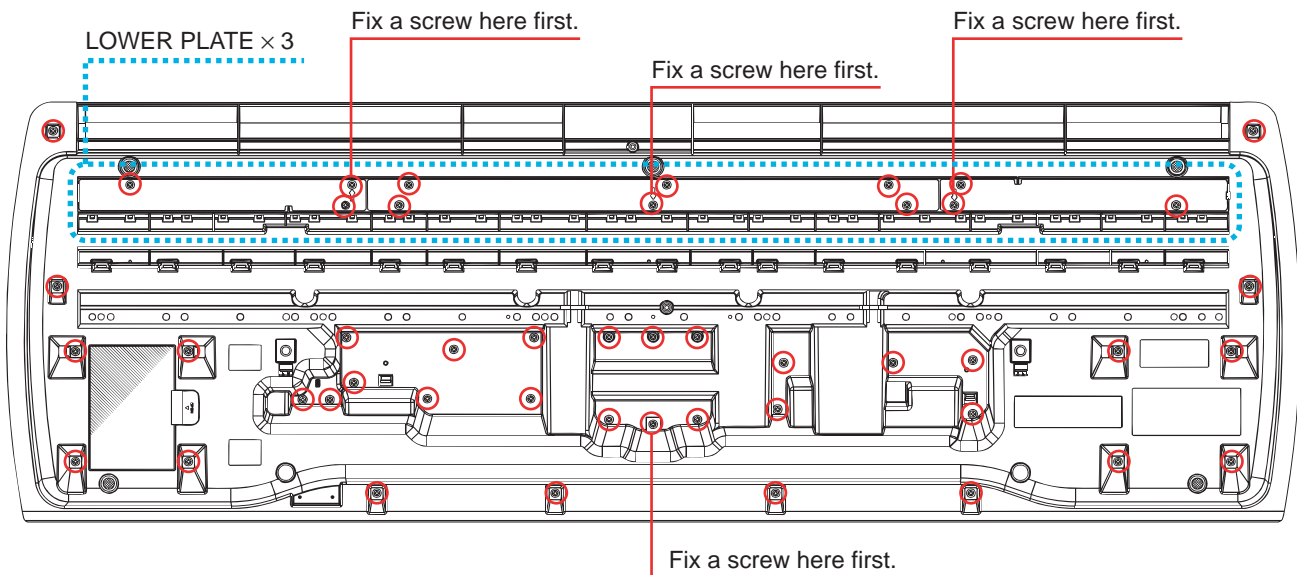
	KID0	KID1	KID2	KID3	KID4	KID5	KID6
KOD8	-	+	0	TEMPO DOWN	TEMPO UP	VOLUME-DOWN	VOLUME-UP
KOD9	3	2	1	START / STOP	SYNCRO / FILL-IN	CHORD BOOK	ACCOMP. VOLUME
KOD10	6	5	4	TRANSPOSE/TUNE	SONG BANK	RHYTHM	TONE
KOD11	9	8	7	POWER / MODE (FINGERD)	POWER / MODE (CASIO CHORD)	POWER / MODE (NORMAL)	POWER / MODE (OFF)
KOD12	FF	RIGHT	PLAY/PAUSE	STOP	LEFT	REW	–

DISASSEMBLY

1. Remove the battery cover and the batteries.
2. Remove the volume knob.



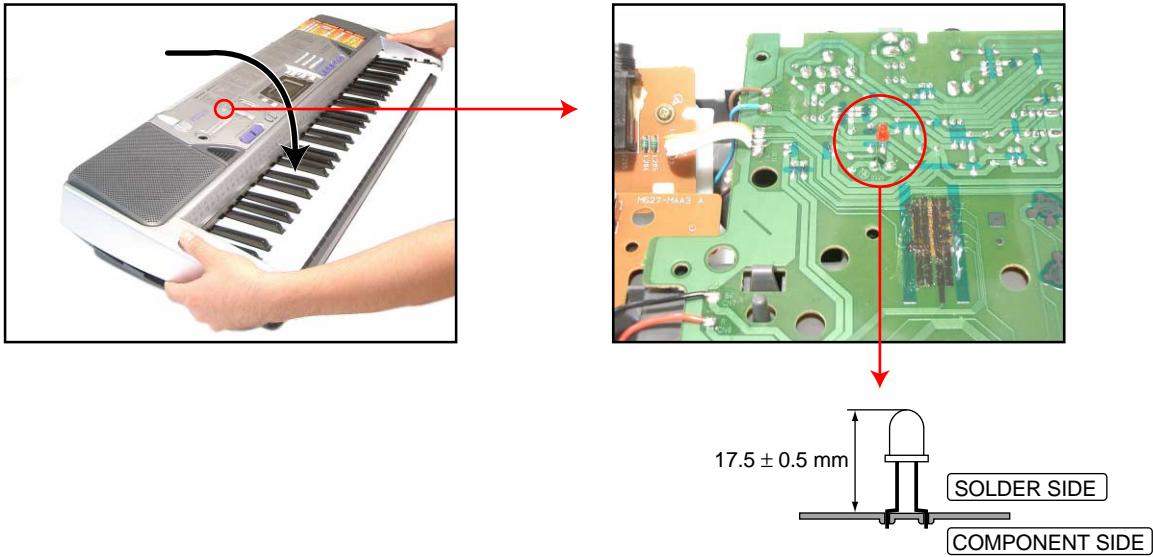
3. Remove 12 screws on the bottom of the product, and three lower plates.
Note: Fix the screws in the right order when assembling each lower plate.
4. Remove 35 screws on the bottom of the product.
Note: Fix the screws in the right order when assembling.



5. Remove the upper case.

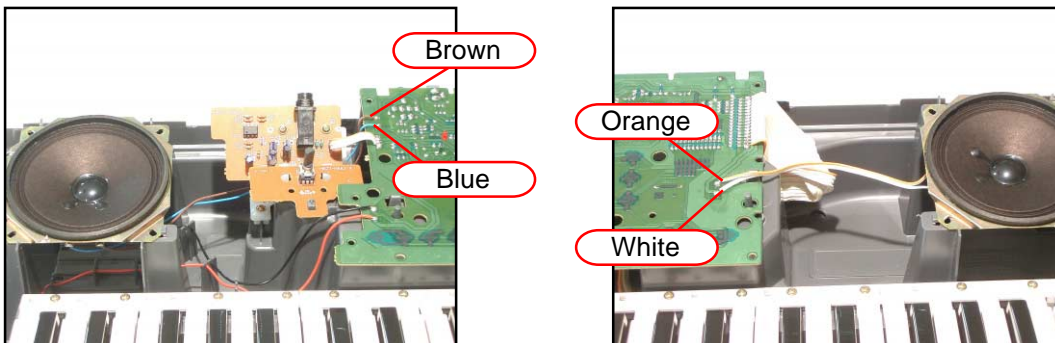


Note: Pay attention to the position of the LED(D225) when assembling the upper case.

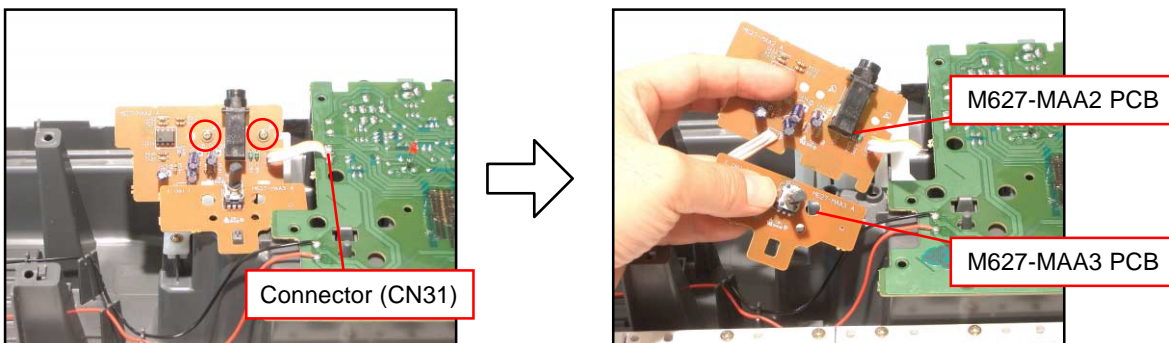


Note: Be careful of the height of the LED (D225) when replacing it.

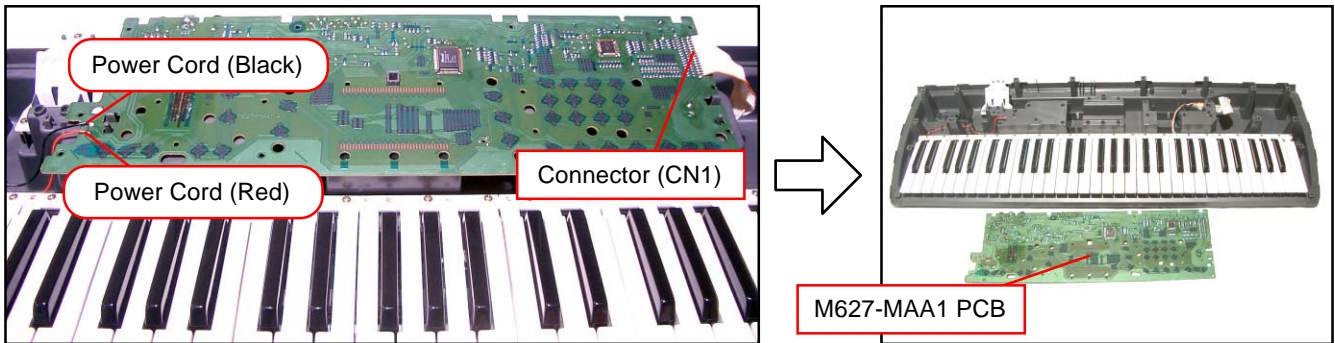
6. Remove four solders and two speakers.



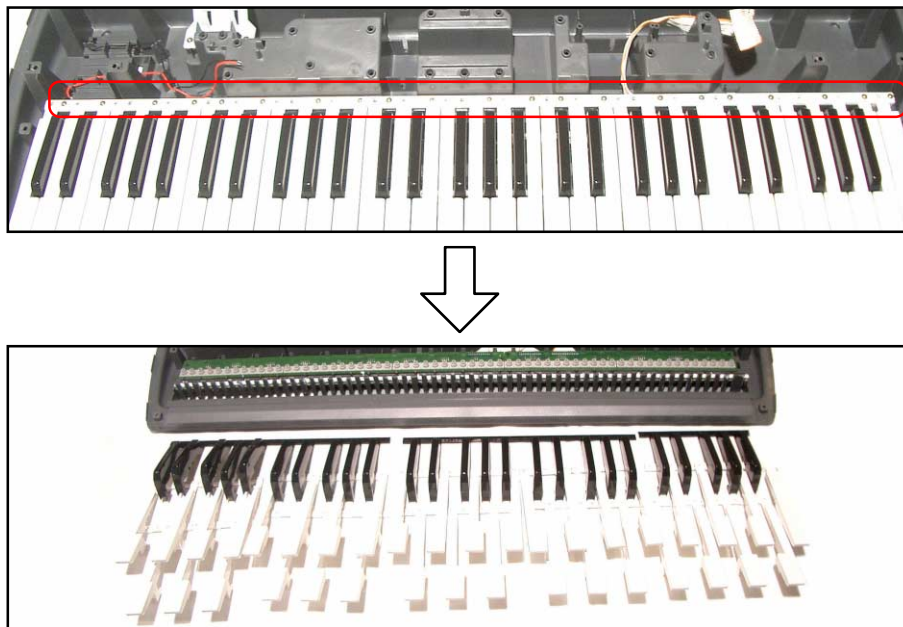
7. Remove two screws and unsolder one connector (CN31), and then remove the M627-MAA2 and M627-MAA3 PCBs.



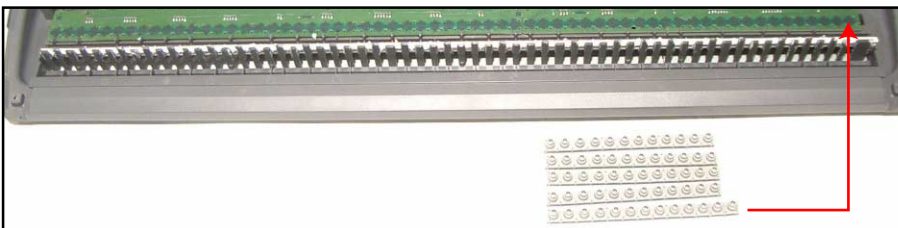
8. Unsolder two lead wires for the power source.
Unsolder one connector (CN1) and then remove the M627-MAA1 PCB.



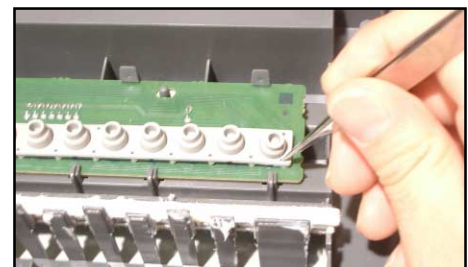
9. Remove 21 screws and the keys.



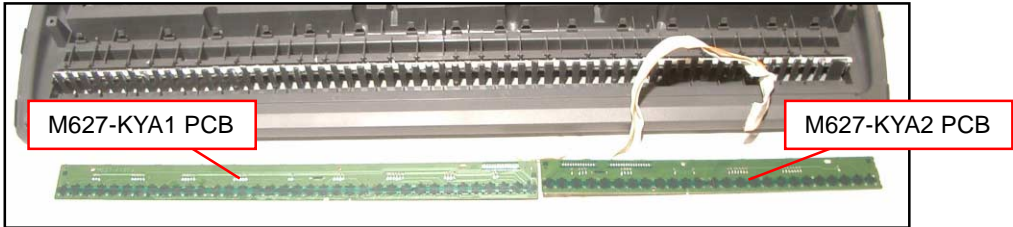
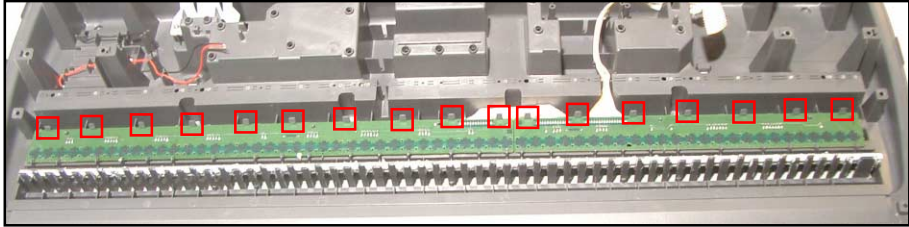
10. Remove five rubber keys on the keyboard.
Note: The length of this one rubber key is different.



- Note: Push the rubber keys all the way in by tweezers when assembling.
Make sure that they are tightly fixed.



11. Unlock 17 hooks and remove the M627-KYA1 and M627-KY2 PCBs.
Note: Make sure to lock all the hooks when assembling.



DIAGNOSTIC PROGRAM

Message on LCD

■ Initial Setting

1. Connect an AC adaptor.
2. Connect a Sustain pedal.

AD-5
SP-2

NOTE: If there is no pedal or MIDI cable, pedal or MIDI check can be skipped.

■ How to start diagnostic program

1. Press the “POWER” button while pressing the “0” and “START/STOP” buttons.

SONG BANK ◀ TEST

■ Diagnostic program

1. MODE Switch check

- ① Set to “CONCERT CHORD” position.
- ② Set to “FINGERED” position.
- ③ Set to “NORMAL” position.

RHYTHM ◀ TEST

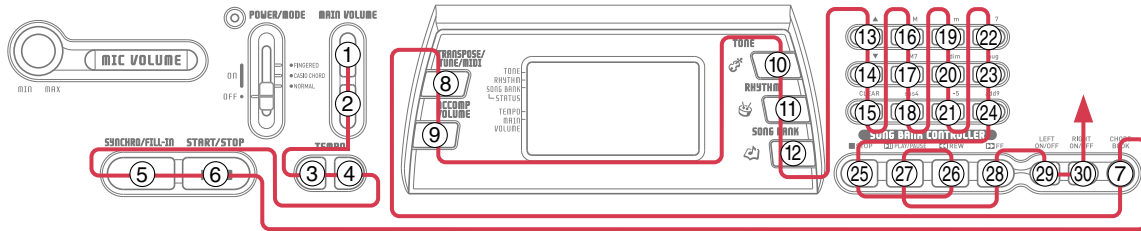
TOONE ◀ TEST

SONG BANK ◀ TEST

2. SWITCH check

- ① Press “0” button.
- ② Press the buttons in the following order.

◀ SWITCH



- ③ OK sound must be audible with the display as Message on LCD

SWIT OK

3. ROM check

- ① Press “2” button.

ROM TEST
↓
ROM 0000
↓
ROM OK

OK sound must ne audible.

4. ROM Version check

- ① Press “1” button.
Pip sound must be audible.

627Vr100

5. D/A check

- ① Press “4” button.
Minimum sine wave sound must be audible at center position.
- ② Press “5” button.
Middle sine wave sound must be audible at center position.
- ③ Press “6” button.
Maximum sine wave sound must be audible at center position.

MIN

MID

MAX

Message on LCD

6. MIDI check

- ① Press "9" button.
OK sound must be audible.

MIDI OK

7. PEDAL check

- ① Press "RHYTHM" button.
- ② Press "Sus PEDAL" button.

PED OFF

PED ON

8. LCD check

- ① Press "TONE" button.
Pip sound must be audible.
All characters turn on.
- ② Press "TONE" button.
Pip sound must be audible.
All characters turn off.

9. AC Adaptor check

- ① Press "SONG BANK" button.
OK sound must be audible.

P=AC ADP

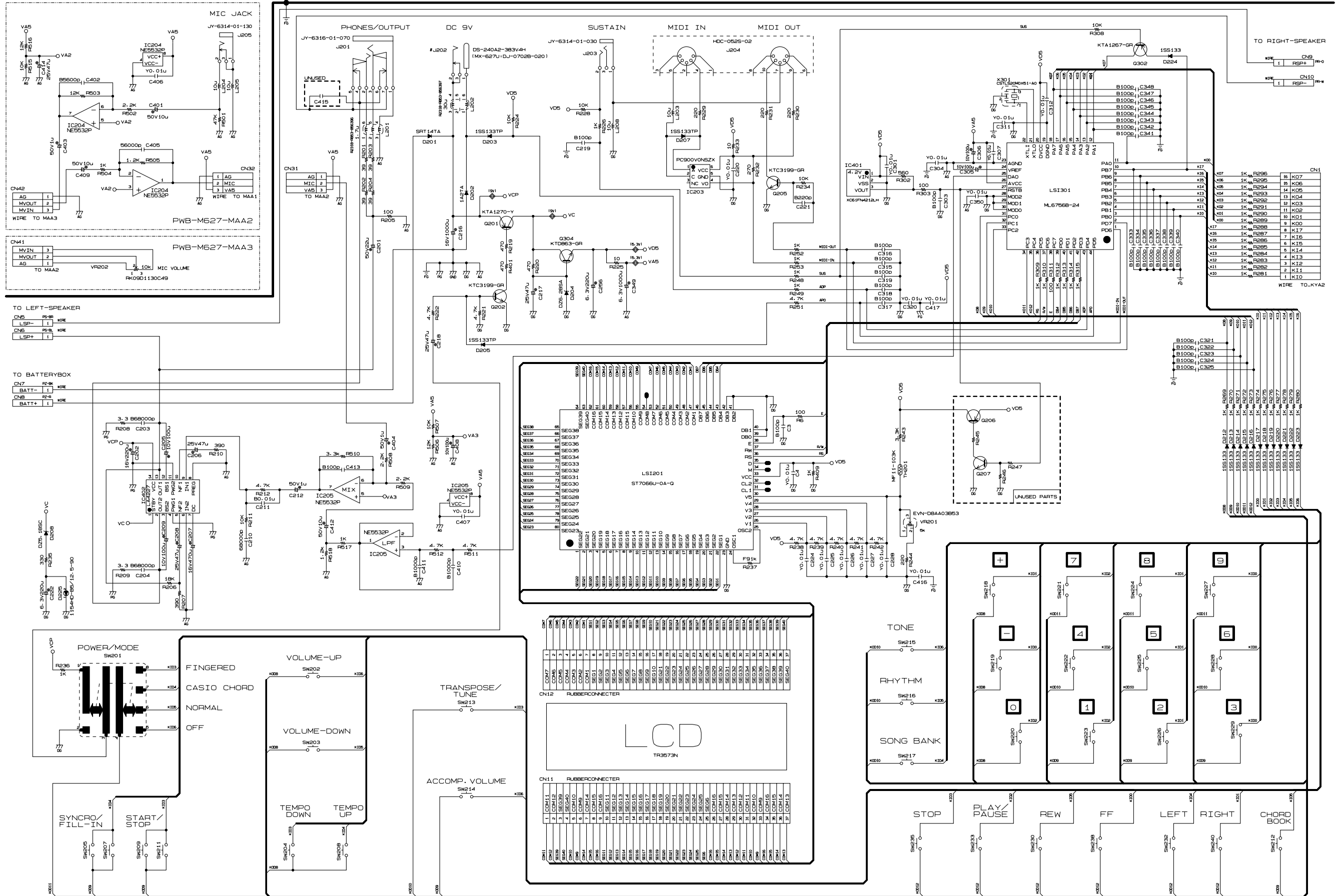
10. APO check

- ① Press "STOP" button.
 - * Go out from TEST mode (Power off).
 - * The LCD turns off.

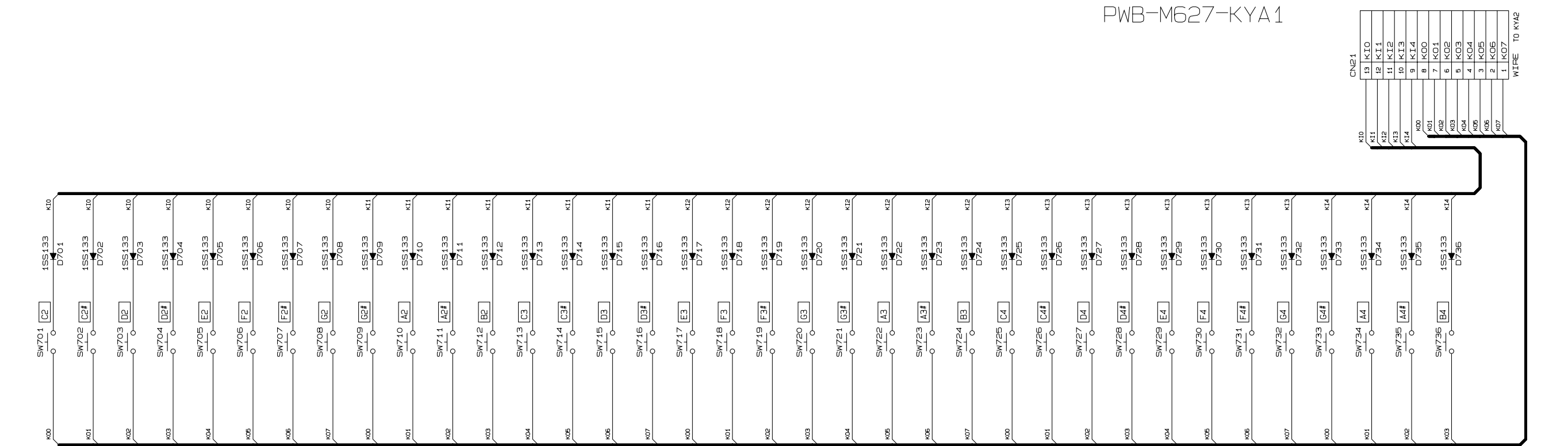
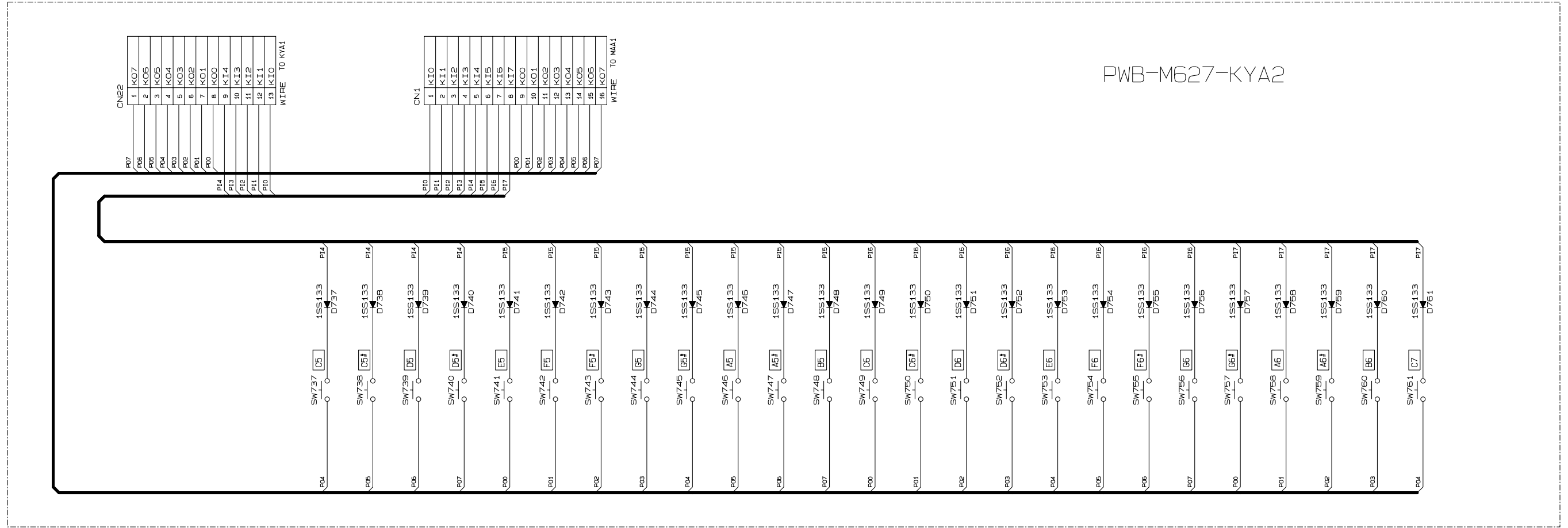
DIAGNOSTIC PROGRAM IS FINISHED.

SCHEMATIC DIAGRAMS

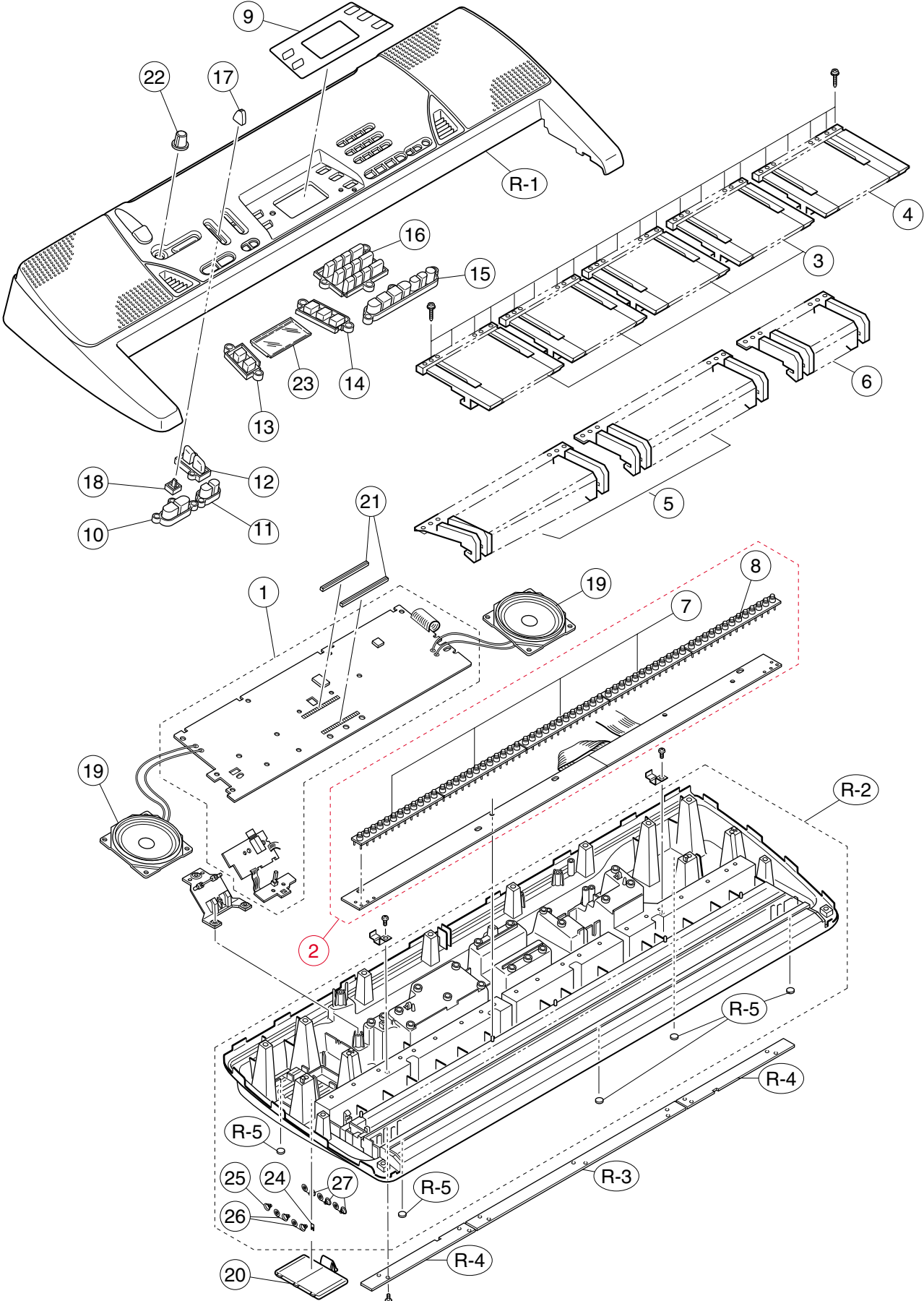
MAIN PCB M420-MAIN1/MIC JACK PCB M420-MAIN2/MIC VOLUME PCB M420-MAIN3



Keyboard PCBs M627-KEY1/KEY2



EXPLODED VIEW



PARTS LIST

CTK-496

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

PARTS PRICE LIST
CTK-496

N	Item	Parts code	Parts name	Specification	Q	Price Code	R	Remarks
Main PCB								
N	1	1016 3666	PCB ASSY/MAA	TK-RJM503927*001	1	CV	A	
N	D225	1010 7268	LED	1154HD-B5/7-90	1	AA	C	
	J204	1008 1222	CONNECTOR	HDC-052S-02	1	AF	C	
	J203,205	6932 5081	CONNECTOR	JY-6314-01-030	2	AB	C	
	J201	6932 5082	CONNECTOR	JY-6316-01-070	1	AD	C	
	L201	1005 7360	COIL	R2318-RB53-856396	1	BB	X	
	L202	1005 6228	COIL	R2318-RB53-856397	1	AB	X	
	IC203	6932 3623	PHOTO COUPLER	PC900V0NSZX	1	AF	X	
	VR201	2775 0994	VARIABLE R	EVN-D8AA03B53	1	AA	C	
	Q302	1007 9925	TRANSISTOR	KTA1267GR-AT	1	AA	C	
	Q202,205	1007 9927	TRANSISTOR	KTC3199GR-AT	2	AA	C	
	Q304	1013 2122	TRANSISTOR	KTD863GR-AT	1	AA	C	
Keyboard PCB								
N	2	1016 3667	PCB ASSY/KYA	TK-RJM503929*001	1	BX	C	
N	D701-761	1010 8141	DIODE	1SS133TP	61	AA	X	
Keyboard unit								
	3	6922 2720	KEY SET/WHITE	M312118*1	4	AP	C	
	4	6922 2730	KEY SET/WHITE	M312118*2	1	AR	C	
	5	6922 2740	KEY SET/BLACK 10P	M111726-1	2	AQ	C	
	6	6922 2750	KEY SET/BLACK 5P	M111726-2	1	AH	C	
N	7	1016 3902	RUBBER/KEY	RJM503854-001V01	4	AD	B	
N	8	1016 3903	RUBBER/KEY	RJM503855-001V01	1	AF	B	
Panel unit								
N	9	1016 3946	PLATE/DISPLAY	RJM503799-001V01	1	AE	C	
N	10	1016 3934	RUBBER/KEY/A	RJM503792-001V01	1	AB	C	
N	11	1016 3931	RUBBER/KEY/B	RJM503793-001V01	1	AA	C	
N	12	1016 3932	RUBBER/KEY/C	RJM503794-001V01	1	AB	C	
N	13	1016 3942	RUBBER/KEY/D	RJM503795-001V01	1	AA	C	
N	14	1016 3943	RUBBER/KEY/E	RJM503796-001V01	1	AB	C	
N	15	1016 3944	RUBBER/KEY/F	RJM503797-001V01	1	AC	C	
N	16	1016 3945	RUBBER/KEY/G	RJM503798-001V01	1	AE	C	
N	17	1016 1407	KNOB/SLIDE	RJM503803-001V01	1	AA	C	
	18	6927 0510	CONTACT/SLIDE	CSB-08D	1	AD	B	
	19	3831 1043	SPEAKER	S10JA13B	2	BE	C	
N	20	1016 3669	COVER ASSY/BATTERY	TK-M340884*014	1	AU	B	
	21	1007 8118	CONNECTOR	M440863-003V01	2	AB	C	
N	22	1016 1408	KNOB/ROTARY	RJM503816-001V01	1	AA	C	
N	23	1016 9838	LCD	TR3573N	1	AU	C	
	24	6927 1080	TERMINAL/BATTERY (+)	M440112-1	1	AB	X	
	25	1000 8078	TERMINAL/BATTERY (-)	M440002A-1	1	AA	X	
	26	6927 1060	TERMINAL/BATTERY	M440676-1	2	AA	X	
	27	6927 1070	TERMINAL/BATTERY	M440677-1	3	AA	X	
Refurbish								
N	R-1	1016 3933	CASE/UPPER	RJM503790-001V01	1	BR	C	
N	R-2	1016 3668	CASE ASSY/MIDDLE	TK-RJM503916*001	1	CN	C	Except US
N	R-2	1016 4732	CASE ASSY/MIDDLE	TK-RJM503916*002	1	CN	C	For US
N	R-3	1016 3935	PLATE/LOWER/A	RJM503801-001V01	1	AE	C	
N	R-4	1016 3936	PLATE/LOWER/B	RJM503802-001V01	2	AB	C	
	R-5	6922 6920	RUBBER/FOOT	M41361-6	5	AA	C	
Accessories								
	-	6920 8690	STAND/MUSIC	M311760-1	1	AL	C	
	-	1008 3548	BATTERY	R6UW/2STA	3	AC	C	Only DI

Notes: **N**- New parts
Q-Quantity used per unit

Ver.1 : Feb. 2005

Correction of the EXPLODED VIEW (P14)

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